

11 MAY 1970

Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 Manila

No. 233
 14° 40'

= 121° 05' E *Guerrero?*
 (INSTRUMENTS) *Cut?*

January 1969
 H = 70.4 Tuff

No.	SEISMOMETER	COMPONENTS	(GALVO) Period	(SEISMO) Period	MAGNIFI- CATION	REMARKS
1	HOSAKA	N - S	1/13 sec.	5 secs.	1,000	Smoke paper type
	Electro- Magnetic	E - W	1/13 sec.	5 secs.	1,000	
		VERTICAL	1/13 sec.	5 secs.	1,000	
1	ISHIMOTO	N - S		0.1	168	Smoke paper type
		E - W		0.1	168	
		VERTICAL				
1	WOOD ANDERSON	N - S		0.8	2,000	TORSION
1	SPRENGNETHER	N - S	7.2	3.5	3,000	Visual
STANDARD SEISMOMETER						
1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,500	
1	BENIOFF	VERTICAL	0.75	1.0	12,500	
1	SPRENGNETHER	N - S	100	15	1,500	
1	SPRENGNETHER	E - W	100	15	1,500	
1	SPRENGNETHER	VERTICAL	100	15	1,500	

1

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JANUARY						
1	1	eSNE	03	02	16		Very small
2	1	eSNEZ	04	26	12		Small, local
3	1	eSNE	05	47	09		Small, local
4	1	iPN iSN	10	51 52	44 00	134	
5	1	iPN iSN	19	54 55	59 38	345	
6	1	ePN iSN	22	54 54	28 44	134	
7	2	eSNE	06	03	33		Small, local
8	2	iPNEZ iSNEZ	11	22 23	53 35	372	Felt: Masbate - Intensity - IV]
9	2	eXNEZ	18	14	05		Teleseismic
10	2	ePZ eSNEZ	19	34 34	15 51	318	
11	2	ePZ eSNEZ	20	07 08	35 00	220	
12	2	eSNEZ	20	13	38		Very small
13	2	ePZ eSNEZ	23	22 22	12 36	210	
14	3	ePNEZ	01	18	05		Small, local
15	3	ePNEZ iSNEZ	06	02 03	47 11	210	
16	3	ePNEZ iSNEZ	06	04 04	02 20	156	
17	3	ePNEZ	07	46	56.5		Small, local
18	3	ePNEZ	07	49	12		Small, local

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 January						
19	3	iPNEZ iSNEZ	12	40	05.7 23.3	153	
20	3	eSNEZ	16	11	46		
21	4	iPNEZ iSNEZ	06	02	48.2 06.0	155	H = 06.02-26.3 15.5N, 121.9E Depth: Normal Felt: Manila - Int. III Baler - Int. III MAG: 4.7 (USCGS) Luzon, Philip- pines
22	4	ePNEZ	06	12	12		Small, local
23	4	ePNEZ	06	13	34		Very small
24	4	iPNEZ iSNEZ	06	21	13.5 30.8	150	
25	4	iPNEZ iSNEZ	08	58	10 27.8	155	
26	4	eSNE	10	24	07		Very small
27	4	ePZ iSNEZ	12	44	10 27.2	150	
28	4	iPNEZ iSNEZ	15	16	09.3 26.6	150	
29	4	eiPNEZ iSNEZ	21	33	08 25.5	152	
30	4	eiPNEZ iSNEZ	21	39	12 29	148	
31	4	iPNEZ iSNEZ	22	41	47 47	2,480	H = 22.36-47.9 6.8S, 129.8E Depth: 107 kms. Banda Sea Mag: 5.7 (USCGS)

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 January						
32	4	eSNEZ	23	39	24		
33	5	iPNEZ iSNEZ	01	30 31	43 02.5	170	
34	5	iPNEZ	01	37	28		
35	5	ePNEZ	02	08	46		
36	5	iPNEZ iSNEZ	07	16 17	48 26	336	
37	5	eSNEZ	07	23	31		Small, local
38	5	eSNEZ	07	30	17		Very small
39	5	iPNEZ iSNEZ	07	32 35	47 00	1,188	H = 07-28-55.8 4.1 N, 125.6E Talaud Islands Mag: 5.3 (USCGS)
40	5	eSNEZ	10	32	42		Very small
41	5	eSNEZ	11	12	39		Small, local
42	5	iPNEZ iSNEZ	13	34 41	45 10	4,920	H = 13-26-39.9 8.0S, 158.9E Depth: 47 kms. Solomon Islands Slight damage on Santa Isabel Island. Mag: 7.0 (USCGS) 7.5 (PAS), 6 $\frac{3}{4}$ (BRK), 6 $\frac{1}{2}$ (PAL)
43	5	iPNEZ iSNEZ	16	05 05	26 44	156	
44	5	ePNEZ	16	18	51		
45	5	eiPNEZ eiSNEZ	16	57 58	57 15	156	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JANUARY						
46	5	iSNEZ	19	57	08		Small, local
47	5	iPNEZ iSNEZ	21	10 10	01 18.3	150	
48	6	ePNZ iSNZ	03	20 21	51 16	220	
49	6	eSNZ	08	07	30		Very small
50	6	eiPNZ iSNZ	13	20 20	29 50	183	
51	6	eSNZ	13	28	48		Small, local
52	6	iPNZ iSNZ	15	47 55	55 11	5,680	H = 65-39-00.9 10.5S, 164.5E Depth: 32 kms. Santa Cruz Islands Region Mag: 6.5 (USCGS) 7.1 (PAS), 6 3/4 7 (BRK), 6.0 (PAL)
53	6	eSNZ	16	44	06		Very small
54	6	eXNZ	17	43	27		Teleseismic
55	6	ePNZ eSNZ	23	07 08	38.5 20.0	368	Felt: Masbate X Int. - III
56	7	iPNZ iSNZ	03	52 52	06 22	139	Felt: Iba- X Int. - III
57	7	eXN	10	10	00		Teleseismic
58	7	iPNZ iSNZ	13	53 53	29 53	210	
59	7	eXN	18	09	00		Teleseismic
60	8	eiPNEZ eiSNEZ	08	41 42	24 03	345	
61	8	eiPNEZ iSNEZ	09	19 19	20 38	156	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 January						
62	8	ipNEZ isNEZ	12	58	07.8 23.2	133	
63	8	ePNEZ eiSNEZ	17	34	16.5 31.2	127	
64	9	ePN eSN	09	23	10 28	156	
65	10	eXNEZ	03	19	02		Telesiesmic
66	10	ePNEZ isNEZ	17	13 14	57 21	210	
67	10	eSNEZ	22	04	25		
68	10	eiPNEZ isNEZ	22	14 14	13 54	363	
69	10	ePNZ eSNZ	04	38 48	00 40	9,960	
70	11	ipNEZ isNEZ	06	04 05	40 00	175	
71	11	ePNEZ	06	19	03		Very small
72	11	eSNEZ	12	29	32		Very small
73	11	ePNEZ isNEZ	14	30 30	31 48.5	152	
74	11	ePNEZ	16	19	03		Teleseismic
75	11	ipNEZ isNEZ	17	32 32	03 27	210	H = 17.31-29.0 16.3N, 122.3E Depth: 16 kms. Luzon, Philip- pines. MAG: 5.0 (USCGS)
76	11	eSEZ	18	27	42		Very small

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 January						
77	12	ePEZ iSEZ	00	31 32	50 10	175	
78	12	iPEZ iSEZ	03	40 41	47.2 07.5	177	
79	12	iPEZ iSEZ	04	41 41	06.8 27.0	176	
80	12	eiPEZ iSEZ	08	51 51	38 53.3	132	
81	12	eiPEZ iSEZ	08	54 54	21.5 41.0	170	
82	12	iPEZ iSEZ	13	06 07	58 19	183	
83	12	ePEZ iSEZ	14	15 16	44 02	156	
84	12	ePEZ eiSEZ	19	39 40	48.5 06.5	156	
85	13	iPNEZ iSNEZ	03	38 38	07 15	156	
86	13	ePNEZ iSNEZ	04	33 33	04 24	175	
87	13	iPNEZ iSNEZ	05	37 37	53 08.5	134	H = 05-37-30.0 13.7N, 120.6E Depth: 121 kms. Mindoro, Philip- pines. Felt: Gulod - INT. III MAG: 5.0 (USCGS)
88	13	ePNEZ iSNEZ	09	01 01	34 50	139	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 January						
89	13	iPNEZ iSNEZ	10	09	09 43	300	H = 10-08-23.6 12.6N, 122.9E Depth: 24 kms. Luzon, Philip- pines Mag: 4.6 (USCGS)
90	13	eSNEZ	10	46	25		Small, local
91	13	iPNEZ iSNEZ	12	32	44 39	489	
92	13	iPNEZ iSNEZ	16	11	54 13	165	
93	13	eiPNEZ iSNEZ	18	30	50 09	165	
94	14	iPNEZ iSNEZ	02	49	44 23	345	Felt: Masbate - Int. - III
95	14	iSNEZ	05	56	07		Small, local
96	14	ePNEZ eSNEZ	23	24	36 00	9,580 #	H = 23-12-07.9 36.2N, 29.2E Depth: 33 kms. TURKEY - Damage AT KAS AND KALKAN Felt: in South- Western Anatolia. Mag: 6.0 (USCGS) 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ (PAS), 6-6 $\frac{1}{4}$ (GOL)
97	15	ePNEZ	08	51	24		Small, local
98	15	eSNEZ	11	03	03		Small, local
99	15	iPNEZ iSNEZ	13	03	20 40	2,020	H = 12-59-06.7 3.2S, 118.9E Depth: 33 kms. Celebes Mag: 5.5 (USCGS)

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NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 January						
100	15	eSNEZ	14	42	20		Very small
101	15	iPNEZ iSNEZ	19	28 29	34.5 05.0	269	
102	15	eiPNEZ iSNEZ	21	56 57	06 08	551	
103	16	eSNEZ	06	55	04		Very small
104	16	iPNEZ eiSNEZ	14	00 01	27 13	408	
105	16	eXN	18	15	48		Telesismic
106	16	eiPNEZ eiSNEZ	19	12 13	44 11	237	
107	16	iPNEZ iSNEZ	20	12 12	43 59	139	
108	16	ePNEZ	20	58	33		Small, local
109	17	eiPNEZ iSNEZ	00	13 14	22 22	533	
110	17	iSNEZ	01	48	03		Very small
111	17	iPNEZ iSNEZ	09	27 27	32.5 51.0	160	
112	17	ePNEZ eSNEZ	21	01 03	28 07	883	H = 20-59-35.7 8.3N, 124.1E Depth: 41 kms. Mindanao, Phi- lippines MAG: 5.1 (USCGS) Felt: Cagayan de Oro City - Int. - IV, Ma- laybalay - Int. - II

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	January						
113	18	iPNEZ iSNEZ	03	54 57	08 40	2,140	
114	18	eSNEZ	06	35	04		Very small
115	18	eSNE	07	14	07		Very small
116	18	iPNEZ iSNEZ	09	20 20	21 37.5	143	
117	18	eSNEZ	11	00	34		Small, local
118	18	eSNEZ	21	37	24		Very small
119	19	iPNEZ iSNEZ	02	42 43	44.4 03.4	165	
120	19	iPNEZ iSNEZ	03	23 24	44 37	470	H = 03-22-29.0 19.3N, 121.2E Depth: 33 kms. Philippine Island Region
121	19	iPNEZ iSNEZ	07	08 14	46 02.5	3,900	H = 07-02-04.4 45.0N, 143.2E Hokkaido, Japan Region. Felt: in Northern Hokke- ido. Mag: 6.4 (USCGS), 7 (PAS) 6½-6¾ (GOL)
122	19	iPNEZ iSNEZ	13	29 29	10.5 33.5	201	
123	19	eSNEZ	15	38	28		Small, local
124	19	ePNEZ	17	22	43		

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 January						
125	19	iPNEZ iSNEZ	19	00 07	10 25	6,000	H = 18.50-52.1 14.9S, 167.2E Depth: 112 kms. New Hebrides Islands, Felt: Lamar and Port Villa, MAG: 6.2 (USCGS), 6 3/4 (PAS), 6 1/4-6 1/2 (GOL)
126	19	ePNEZ	23	35	46		
127	20	ePNEZ iSNEZ	02	39 39	43.6 56.0	106	
128	20	ePNEZ	05	03	00		Teleseismic
129	20	iPNEZ iSNEZ	12	33 40	34 44	5,780	H = 12.24-35.2 10.3S, 164.6E Depth: 4 kms. Santa Cruz Is- land Region Mag: 5.7 (USCGS)
130	20	ePNEZ iSNEZ	14	29 37	31 03	6,200	H = 14.20-11.5 54.9N, 166.0E Depth: 23 kms. Korandoroky Islands Region Mag: 6.0 (USCGS)
131	20	eXNEZ	18	52	40		
132	20	eSNEZ	21	01	36		Small, local
133	21	iPNEZ iSNEZ	01	52 56	32 32	2,460	H = 01.47-29.6 7.3S, 128.3E Depth: 91 kms. Banda Sea Mag: 5.6 (USCGS)
134	21	eSNE	03	32	51		Very small
135	21	eSNE	07	46	35		Very small

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	January						
136	21	eSNEZ	10	05	05		Very small
137	21	eXN	10	54	00		Teleseismic
138	22	iPNEZ iSNEZ	09	16 16	03 20.3	150	
139	22	iPNEZ iSNEZ	12	49 50	58.5 24.2	225	
140	22	iSNEZ	13	32	45		Small, local
141	22	ePNEZ	22	09	22		
142	23	eSNEZ	01	14	35		Small, local
143	23	eSNEZ	02	34	41		Small, local
144	23	ePNEZ	05	59	44		Very small
145	23	eSNEZ	15	08	10		Small, local
146	23	eXNEZ	18	36	35		
147	24	iPNEZ iSNEZ	02	43 52	10 11	7,920	H = 02-33-03.5 21.9S, 179.6N Depth: 595 kms. Fuji Islands Region. Mag: 5.9 (USCGS), 7.0 (PAS)
148	24	eSNEZ	03	53	02		
149	24	iPNEZ iSNEZ	06	11 12	57 17.5	178	
150	24	eSNE	08	07	30		Very small
151	24	iSNEZ	09	09	49		Local, small
152	24	iPNEZ iSNEZ	11	32 33	46 07.8	190	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE	REMARKS
			h	m	s		
	1969 January						
153	24	ePZ iSNEZ	22	40	07 26.5	170	
154	25	iPNEZ iSNEZ	00	53	47.5 10.0	197	
155	25	iPNEZ iSNEZ	05	22	50 30	1,620	H = 05-19-17.1 0.8N, 126.1E Depth: 24 kms. Molucca Passage Mag: 5.9 (USCGS), 6.2 (PAS), 5.7 (MAG)
156	25	eiPNEZ iSNEZ	12	27	14 42	246	
157	25	eSNEZ	17	02	18		Small, local
158	25	eiPNEZ .iSNEZ	17	07	51 23	282	
159	25	ePZ iSNEZ	19	26	09 27	138	
160	26	iPNEZ iSNEZ	00	16	05.4 21.0	135	
161	26	iPNEZ iSNEZ	00	37	51 23.8	290	
162	26	iPNEZ iSNEZ	02	14	03.2 17.2	121	
163	26	eSNEZ	03	43	08		Very small
164	26	ePNEZ eiSNEZ	06	09	15 28	1,190	H = 06-06-05.9 6.6N, 127.4E Depth: 50 kms. Philippine Islands Region Mag: 5.4 (USCGS)

Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 (Quezon City)

11 MAY 1970

No. 234
 0114 40'

$\lambda = 121^{\circ}05'E$
 (INSTRUMENTS)

February, 1969

No.	SEISMOMETER	COMPONENTS	(GALVO) Period	(SEISMO) Period	MAGNIFI- CATION	REMARKS
1	HOSAKA	N - S	1/13 sec.	5 secs.	1,000	Smoke paper type
	Electro- Magnetic	E - W	1/13 sec.	5 secs.	1,000	
		VERTICAL	1/13 sec.	5 secs.	1,000	
1	ISHIMOTO	N - S		0.1	174	Smoke paper type
		E - W		0.1	174	
		VERTICAL		0.1	179	
1	WOOD ANDERSON	N - S		0.8	2,000	TORSION
1	SPRENGNETHER	N - S	7.2	3.5	3,000	Visual
STANDARD SEISMOMETER						
1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,500	
1	BENIOFF	VERTICAL	0.75	1.0	12,500	
1	SPRENGNETHER	N - S	100	15	1,500	
1	SPRENGNETHER	E - W	100	15	1,500	
1	SPRENGNETHER	VERTICAL	100	15	1,500	

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
201	1	eXNZ	02	48	00		Teleseismic
202	1	eXN	05	36	00		Teleseismic
203	1	ePNEZ	07	32	00		Teleseismic
204	1	ePNEZ eSNEZ	07	43 44	16 56	885	H=07-41-22.8 9.2N, 126.4E Depth 33 kms. Mindanao, Phils. Mag: 5.0 (USCGS)
205	1	ePNEZ eSNEZ	16	22 25	30 42	1,705	H=16-19-13.3 Depth 33 kms. 4.0N, 128.1E North of Halmahera Mag: 5.5 (USCGS)
206	2	iPNEZ jSNEZ	00	14 14	11 47.5	322	
207	2	ePNEZ eSNEZ	01	42 45	00 12	1,705	H=01-38-44.2 3.9N, 128.2E North of Halmahera Mag: 5.8 (USCGS)
208	2	eXNZ	04	07	00		Teleseismic
209	2	ePNZ eSNZ	05	24 27	39 50	1,700	H=05-21-26.2 3.9N, 128.3E Depth 33 kms. North of Halmahera Mag: 5.3 (USCGS)
210	2	ePNEZ iSNEZ	12	11 11	15 30.8	137	
211	2	ePNEZ iSNEZ	12	58 59	47.5 05	152	
212	2	eSNEZ	13	42	09		Small, local
213	2	eSNEZ	14	13	37		Small, local
214	2	eSNEZ	15	12	46		Small, local

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
215	2	ePNZ eSNZ	16	24 28	52 22	1,870	H=16-21-15.4 3.8N, 128.4E Depth Normal North of Halmahera Mag: 5.3 (USCGS)
216	2	eXNZ	20	44	12		Teleseismic
217	2	eSNEZ	21	31	05		Small, local
218	2	iPNEZ iSNEZ	22	06 06	11.4 42.0	270	
219	3	ePNZ eSNZ	04	03 06	30 45	1,720	H=04-00-25.6 3.7N, 128.5E Depth 93 kms. North of Halmahera Mag: 4.9 (USCGS)
220	3	ePNZ eSNZ	05	01 04	22 50	2,080	
221	3	eSNEZ	08	28	18		Small, local
222	3	eiPNEZ eiSNEZ	09	47 48	22 28.5	592	H=09-45-52 19.2N, 121.2E Depth 57 kms. Mag: 4.5 (USCGS) Felt: Calayan - III
223	3	eiPNEZ eiSNEZ	14	20 20	19 45.5	233	
224	3	eXNZ	17	18	44		Teleseismic
225	3	iPNEZ eiSNEZ	19	04 07	28 00	1,470	H=19-01-29.4 4.4N, 128.1E Depth 33 kms. North of Halmahera Mag: 5.5 (USCGS)
226	3	iSNE	20	07	17		Small, local
227	3	iPNEZ iSNEZ	21	44 46	35 52	1,219	H=21-41-41.9 4.9N, 127.4S Depth 33 kms.

No	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						Talau Islands Mag: 6.1 (USCGS), 6.8(PAS), 6 ³ / ₄ (ERR) Felt: Hinatuan - IV Davao & Gen. Santos Cotabato - II, Malaybalay - I
228	4	iPNZ iSNZ	01	42 45	09 15	1,840	H=01-38-26.2 0.6N, 121.7E Depth 33 kms. Northern Celebes Mag: 6.1 (USCGS), 6.0 (PAS)
229	4	eXNZ	05	13	44		Teleseismic
230	4	eSNEZ	13	36	30		Very Small
231	4	eiPNEZ eiSNEZ	13	41 42	59 09.4	89	
232	4	eXNZ	17	05	00		Teleseismic
233	4	ePNEZ	19	34	08		Small, local
234	4	iPNEZ iSNEZ	23	14 15	37.5 04.7	239	
235	5	ePEZ iSNEZ	05	46 46	18 39.5	188	
236	5	eiPNEZ eiSNEZ	08	32 32	03 22	165	
237	5	ePNEZ eSNEZ	10	39 43	40 07	1,840	H=10-36-24.6 3.8N, 128.6E Depth 35 kms. North of Halmakera Mag: 5.2 (USCGS)
238	5	iPNEZ iSNEZ	18	23 23	02.5 23.0	176	Felt: Casiguran-II

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
239	5	eSNZ	20	02	34		H=19-58-23.6 8.3N, 123.4E Depth 63 kms. Mindanao, Phils. Mag: 4.4 (USCGS) Felt: Zamboanga city-II, Dipolog- III
240	6	eiPNEZ iSNEZ	02	01	10.4 28.8	160	
241	6	ePNEZ iSNEZ	06	22	37.3 57.8	179	
242	6	eXNZ	07	44	08 ¹		Teleseismic
243	6	eiPNEZ eiSNEZ	08	04 05	06 18	641	
244	6	eSNEZ	10	49	00		Small, local
245	6	eiPNEZ iSNEZ	12	07 07	02 20	156	
246	6	eiPNEZ iSNEZ	18	39 39	12 30	156	
247	6	eiPNEZ iSNEZ	21	08 08	04 24	175	
248	7	eSNE	20	18	36		Very small
249	7	iSNEZ	23	06	31		Small, local
250	8	ePNEZ eiSNEZ	02	03 04	59 20	183	
251	8	iPNEZ iSNEZ	06	21 22	43 03	175	
252	8	ePNEZ iSNEZ	14	11 11	30.2 53.7	206	

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
253	8	iSNEZ	17	38	22		Small, local
254	8	eXNEZ	19	21	36		Teleseismic H=19-15-16.1 Depth 56 kms. North of Halmahera Mag: 5.0 (USCGS)
255	9	eXNZ	04	19	36		Teleseismic H= 04-12-07.4 4.5N, 128.3E Depth 51 kms. North of Halmahera Mag: 5.0 (USCGS)
256	9	eiPNEZ iSNEZ	05	52	22.5 49.5	237	
257	9	ePNEZ eiSNEZ	08	17	18 37	165	
258	9	eXNZ	14	12	22		Teleseismic
259	9	eXNEZ	15	49	36		Teleseismic
260	9	eSNEZ	17	26	54		Small, local
261	9	eSNEZ	17	51	21		Very small
262	9	eiPNEZ eiSNEZ	19	53 54	50 19.5	260	
263	10	iSNE	05	02	46.5		Small, local
264	10						Felt: Dumaguete City - Int. III at 0543 Z. Not recorded.
265	10	eSNE	05	44	58		Very small
266	10	eSNEZ	08	06	00		Small, local
	10						Felt: Dumaguete City Int. - II at 0942 Z. Not recorded.

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
267	10	iPNEZ iSNEZ	12	52 53	56 27	274	
268	10	ePNZ eSNZ	14	12 15	25 32	1,870	H=14-09-17.4 3.7N, 128.2E Depth 78 kms. North of Halmahera Mag: 5.0 (USCGS)
269	10	eSNE	15	11	05		Small, local
270	10	ePN eSN	23	01 01	00 20	175	
271	10	iPNEZ iSNEZ	23	08 16	00 08	6,880	H=22-58-05.8 22.7S, 178.6E Depth 673 kms. South of Fiji Island Mag: 6.0(USCGS), 6.0 (PAS); 6.7(BRK)
272	11	eiPNEZ iSNEZ	12	50 51	42 14.4	284	
273	11	iPNEZ iSNEZ	18	44 44	26.4 45.0	162	
274	11	iPNEZ iSNEZ	22	17 20	17 38.5	2,010	H=22-16-13.5 6.7S, 126.8E Depth 450 kms. Banda Sea Mag: 6.0(USCGS), 7 (PAS), 6.7(BRK) Felt: Davao City
275	12	iPNEZ iSNEZ	21	44 45	58.2 18.8	180	
276	12	iPNEZ iSNEZ	22	29 29	04.7 20.7	139	
277	13	iPNEZ iSNEZ	02	28 28	23.2 38.5	132	

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
278	13	iPNEZ iSNEZ	10	25 27	14 30	1,180	H=10-22-31.1 5.ON, 126.9E Depth 33 kms. Mindanao, Phils. Mag: 5.3 (USCGS)
279	13	iPNEZ iSNEZ	11	53 54	57 21	210	
280	13	eSNEZ	16	36	41		Very small
281	13	iPNEZ iSNEZ	19	29 30	39 07	246	
282	13	iPNEZ iSNEZ	19	57 58	41.6 05.6	210	
283	13	iPNEZ iSNEZ	23	03 03	03 19.8	146	
284	14	iPNEZ iSNEZ	03	10 10	38 49.5	98	
285	14	iPNEZ iSNEZ	03	35 36	41.2 03.0	190	
286	14	iSNEZ	09	00	18		Small, local
287	14	iSNEZ	14	03	35		Very small
288	14	eSNEZ	20	37	55		Small, local
289	14	eiPNEZ eiSNEZ	22	20 20	08 24	139	
290	15	eSNE	04	57	04		Small, local
291	15	iPNE iSNE	10	12 12	05 31	228	
292	15	eSNE	13	58	19		
293	15	iPNE iSNE	17	04 05	58 17.5	170	

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
294	15	eiPNE iSNE	18	30	36	210	
295	15	eiPNE iSNE	20	08	29	210	
296	15	eSNE	22	25	58		Very small
297	16	eSNE	01	32	34		Small, local
298	16	iPNEZ iSNEZ	03	26	40	155	
299	16	eSNE	04	53	41		Very small
300	16	ePNEZ eSNEZ	05	47	10	578	
301	16	eiPNEZ iSNEZ	15	57	47.5	152	
302	16	eSNEZ	16	33	33		Small, local
303	17	iPNEZ iSNEZ	00	46	14	1,580.	H= 00-42-59.2 3.8N, 128.4E Depth 14 kms. North of Halmahera Mag: 5.6 (USCGS), 6½ (PAS)
304	17	eXNEZ	01	18	58		Teleseismic
305	17	ePZ eSZ	06	30	26	1,580	H=06-27-14.1 3.9N, 128.5E Depth 72 kms. North of Halma- hera. Mag: 4.7 (USCGS)
306	17	iSNEZ	07	43	31.5		Very small
307	17	ePNEZ eSNEZ	16	06	46	748	
308	17	eSNE	18	03	44		Small, local

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
309	17	iPNEZ iSNEZ	18	23	26 44.2	158	
310	17	ePNE eSNE	18	27	12 23	94	
311	17	iPNEZ eiSNEZ	20	16	46 08	2,010	H= 20-17-01.7 5.5N, 127.6E Depth 72 kms. Philippine Islands Region Mag: 4.5 (USCGS)
312	17	eSNEZ	21	23	16		Small, local
313	18	eSNEZ	06	47	12		Small, local
314	18	eSNEZ	08	38	13		Small, local
315	18	eSNEZ	13	37	32		Small, local
316	18	eSNEZ	15	40	00		Small, local
317	18	eSNEZ	17	31	04		Small, local
318	18	eSNE	20	15	11		Very small
319	19	iPNEZ iSNEZ	07	48	31 35.8	38	
320	19	eXNEZ	08	42	29		
321	19						Felt in Gen. Santos of Intensity II at 1805 Z
322	20	iPNEZ iSNEZ	09	43 47	47 22	2,280	
323	20	iPNEZ iSNEZ	10	33 35	36 49	1,710	H= 10-30-22.1 3.5N, 128.4E Depth 77 kms. North of Halmahera Mag: 6.0 (USCGS)

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
324	20	eXNEZ	12	34	09		Teleseismic
325	20	ePN eSN	15	41 43	12 52	1,550	H=15-38-02.4 3.5N, 128.6E Depth 59 kms. North of Halmahera Mag: 5.1 (USCGS)
326	20	iPNEZ iSNEZ	17	01 04	24 24	1,780	H=16-58-13.8 3.7N, 128.2E Depth 48 kms. North of Halmahera Mag: 5.8 (USCGS)
327	20	iSNE	18	06	30		Very small
328	20	eXNEZ	19	13	32		Teleseismic
329	20	iPNEZ iSNEZ	23	08 08	11.2 21.6	178	
330	21	eSNE	10	10	28		Very small
331	21	ePNEZ eSZ	16	37 40	36 16	1,550	H=16-34-29.3 3.3N, 128.3E Depth 86 kms. North of Halmahera Mag: 5.0 (USCGS)
332	21	ePNEZ eiSNEZ	19	05 05	05.2 25.2	175	
333	21	eSNEZ	20	28	13		Small, local
334	21	eSNEZ	20	44	09		Very small
335	22	ePNEZ iSNEZ	02	02 03	46 09	201	
336	22	eXZ	17	59	24		Teleseismic H=17-53-51.4 3.5N, 128.2E Depth 59 kms. North of Halmahera Mag: 5.2 (USCGS)

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
337	22	eXNEZ	23	03	06		
338	22	eSNEZ	23	32	54		Very small
339	23	iPNEZ iSNEZ	00	41 44	12 47	2,170	H=00-36-56.6 3.1 S, 118.9E Depth 13 Celebes. At least 20 persons dead at Madjene due to earthquake. Mag: 6.9(USCGS) 6 3/4-7(PAS), 7.2(BRK)
340	23	iPNEZ iSNEZ	01	17 21	30 04	2,165	H=01-13-15.4 3.3S, 119.1E Depth 33 kms. Celebes. Mag: 5.3(USCGS)
341	23	iPNEZ iSNEZ	02	21 24	14 48	2,165	H=02-17-01.4 3.1S, 118.8E Depth Normal Celebes Mag: 5.4(USCGS)
342	23	iPNEZ eiSNEZ	02	55 58	12 47	2,170	- H=02-50-54.4 3.4S, 119.1E Depth 22 kms. Celebes. Mag: 5.2 USCGS)
343	23	iPNEZ iSNEZ	06	08 11	07 51	2,300	H=06-03-47.0 3.4S, 119.0E Depth 7 kms. Celebes. Mag: 5.5(USCGS)
344	23	iSNEZ	10	06	17		Small, local
345	23	eiPNEZ iSNEZ	13	46 47	40 04	201	
346	23	eSNE	20	22	48		Very small
347	24	iPNEZ iSNEZ	00	13 17	53 58	2,560	H=00-08-45.6 6.2S, 131.0E Depth 38kms. Tanimbar Islands Region Mag: 5.9 (USCGS)
348	24	eXNEZ	01	04	41		Teleseismic, H-01-01-10.9 1.7N, 126.4E Depth 16kms. Molucca Passage Mag: 5.1 (USCGS)

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
349	24	iPNEZ eISNEZ	02	47 48	31 26.5	493	
350	24	iPNEZ iSNEZ	05	22 25	18 51	2,160	
351	24	eSNEZ	14	10	28		Small, local
352	24	iPNEZ iSNEZ	15	27 29	45 56	1,152	H=15-25-08.7 5.4N, 126.4E Depth 52 kms. Mindanao, Phils. Mag: 4.8 (USCGS)
353	24	iPNEZ iSNEZ	16	44 47	56 36	1,560	H=16-41-45.2 3.7N, 128.8E Depth 39 kms. North of Halmahera Mag: 5.0 (USCGS)
354	25	iPNEZ iSNEZ	01	37 39	37 44	1,134	H=01-35-03.0 5.2N, 126.3E Depth 65 kms. Mindanao, Phils. Mag: 5.5 (USCGS)
355	25	iPNEZ iSNEZ	02	05 05	09.4 26.6	150	
356	25	ePNEZ eSNEZ	06	37 37	36.5 54.2	153	
357	25	iPNEZ iSNEZ	07	40 41	33 50	685	
358	25	iPNEZ iSNEZ	11	39 39	21 47	223	
369	25	ePZ eSZ	14	51 59	48 22	6,260	

No.	DATE	PHASE	GREENWICH			DISTANCE Kms.	REMARKS
			h	TIME m	s		
	1969 Feb.						
360	25	iPNEZ iSNEZ	22	33 33	25 42.5	152	
361	26	eSNE	08	11	47		Very small
362	26	ePZ eSZ	08	23 25	20 54	1,280	H=08-20-15.1 3.6N, 128.5E Depth 99 kms. North of Halmahera Mag: 4.8 (USCGS)
363	26	eSNE	11	03	13		Very small
364	26	ePNEZ	18	31	57		Very small
365	26	iPNEZ iSNEZ	22	32 32	17 34	148	
366	26	eXZ	22	55	40		Teleseismic
367	27	iPNEZ iSNEZ	14	23 24	52 22.2	284	
368	27	eiPNEZ iSNEZ	15	44 44	19 39.5	178	
369	28	eSN	02	59	24		Onset of a distant major earthquake not recorded, ins- truments under routine check.
370	28	ePNE	03	58	03		Teleseismic
371	28	iPNE iSNE	04	11 12	23.5 02.0	340	
372	28	iPNE iSNE	08	21 21	38.5 58.5	175	

No.	DATE	PHASE	GREENWICH TIME			DISTANCE Kms.	REMARKS
			h	m	s		
	1969 Feb.						
373	28	iPNE iSNE	13	22	16.4 56.0	2,220	H=13-18-07.4 3.4S, 119.0E Depth 51 kms. Celebes Mag: 5.3 (USCGC)
374	28	iPNE eiSNE	14	22	02 55	470	
375	28	eSNE	21	14	03		Very small
376	28	eSNE	22	13	18		Very small

INTERNATIONAL SEISMOLOGICAL CENTRE
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 6 South Street
 Edinburgh 9
 Scotland

STATION	INSTRUMENT	COMMISSION	TIME	PHASE	AMPLITUDE	PERIOD	QUALITY
MANILA	W. 100	100	10.00	LONG	100	100	100
MANILA	W. 100	100	10.00	LONG	100	100	100
MANILA	W. 100	100	10.00	LONG	100	100	100
MANILA	W. 100	100	10.00	LONG	100	100	100
MANILA	W. 100	100	10.00	LONG	100	100	100
MANILA	W. 100	100	10.00	LONG	100	100	100
MANILA	W. 100	100	10.00	LONG	100	100	100
MANILA	W. 100	100	10.00	LONG	100	100	100
MANILA	W. 100	100	10.00	LONG	100	100	100
MANILA	W. 100	100	10.00	LONG	100	100	100

Republic of the Philippines
 DEPARTMENT OF COMMERCE AND INDUSTRY
 WEATHER BUREAU
 QCDB BLDG
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 CITY

INTERNATIONAL SEISMOLOGICAL CENTRE
 The Geophysics Laboratories
 6 South Oswald Road
 Edinburgh 9
 Scotland

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11 MAY 1970

Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 Quezon City

No. 235
 S=14 40'

$\Delta = 121^{\circ}05'E$
 (INSTRUMENTS)

March 1969

No.	SEISMOMETER	COMPONENTS	(GALVO) PERIOD	(SEISMO) PERIOD	MAGNIFICATION	REMARKS
1	HOSAKA	N - S	1/13 sec.	5 secs.	1,000	Smoke paper type
	Electro-Magnetic	E - W	1/13 sec.	5 secs.	1,000	
		VERTICAL	1/13 sec.	5 secs.	1,000	
1	ISHIMOTO	N - S		0.1	174	Smoke paper type
		E - W		0.1	174	
		VERTICAL		0.1	179	
1	WOOD ANDERSON	N - S		0.8	2,000	TORSION
1	SPRENGNETHER	N - S	7.2	3.5	3,000	VISUAL
STANDARD SEISMOMETER						
1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,000	
1	BENIOFF	VERTICAL	0.75	1.0	12,500	
1	SPRENGNETHER	N - S	100	15	1,500	
1	SPRENGNETHER	E - W	100	15	1,500	
1	SPRENGNETHER	VERTICAL	100	15	1,500	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	MARCH						
377	1	ePZ	06	48	34		Very small
388	1	eSNZ	08	31	38		Very small
389	1	eSEZ	10	14	37		Very small
390	1	iPEZ eISEZ	17	42	25 42	255	
391	2	ePNE	02	48	06		Very small
392	2	ePNE	04	18	00		Very small
393	2	iPNEZ iSNEZ	04	51 53	10 57	1,460	H=04-47-37.3 Depth: 138 kms. 1.5N, 128.1E Halmahera Mag: 5.3 (USCGS)
394	2	ePNEZ	09	24	07		
395	2	iPNEZ iSNEZ	13	22	30 37.2	60	
396	2	iPNEZ iSNEZ	14	01 05	38 14	2,180	
397	2	iPNEZ iSNEZ	21	05 05	09 33	210	
398	2	iPNEZ iSNEZ	22	21 22	54.5 18.5	210	
399	2	ePNEZ eSNEZ	22	23 24	47 12	220	H=22-23-12.9 Depth: 80 kms. 12.9N, 120.8E Mindoro, Philip- pine Island - Mag: 5.0 (USCGS) Calapan - Int. II Manila - Int. I

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	MARCH						
400	2	iPNEZ iSNEZ	22	37 37	33 53	175	H=22-37-02.4 Depth: 46 kms. 12.9 N, 120.6E Mindoro, Philip- pine Island Mag: 4.4 (USCGS)
401	2	iSNE	23	32	17		Very small
402	2	eiPNE eSNE	23	39 39	28.3 31.8	27	
403	2	eSNE	23	47	34		Very small
404	2	eSN	23	54	34		
405	3	iPNE iSNE	00	32 32	34 59.2	221	
406	3	ePN	00	56	44		
407	3	iPNEZ iSNEZ	08	55 56	17 24	596	H = 08-53-48.4 Depth: 99 kms. 10.6N, 125.3E Leyte, Borongan, Tacloban, Virac Radar - Int. III, Catarman, Virac, Catbalogan - Int. II Philippine Islands Mag: 5.1 (USCGS)
408	3	iPNEZ iSNEZ	10	05 05	09.2 25.2	138	
409	3	ePNZ eSNZ	14	58 05	12 14	5,700	
410	3	ePNZ eSNZ	16	41 51	42 20	7,500	H= 16-30-13.8 Depth: Normal 16.9S, 172.5W Sampa Island MAG: 5.1 (USCGS)

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MARCH						
411	3	eXNZ	17	05	04		Teleseismic H = 16-59-45.0 Depth: 197 kms. 50.8N, 154.3E Kurile Islands Mag: 4.3 (USCGS)
412	3	iPNZ iSNZ	20	25 29	15 06	2,370	H = 20-22-07.3 Depth: 72 kms. 3.6 N, 128.5E North of Halmahera Mag: 4.8 (USCGS)
413	3	ePNEZ eSNEZ	20	46 47	50 13	201	
414	4	eSNEZ	06	48	58		Small, local
415	4	eXNZ	10	15	14		Teleseismic
416	4	eXNZ	19	40	18		Teleseismic
417	5	iPNEZ iSNEZ	01	19 19	11 40.4	259	
418	5	iPNEZ iSNEZ	08	53 55	02.3 14.8	1,183	H = 08-51-20.6 Depth: 66 kms. 9.9N, 125.8E Mindanao, Philip- pine Islands Mag: 5.1 (USCGS)
419	5	iPNEZ iSNEZ	10	54 54	03.2 27.0	203	
420	5	iPNEZ iSNEZ	11	22 23	58 23	220	
421	5	iPNEZ iSNEZ	13	55 58	08 28	1,880	H=13-52-04.9 Depth: 48 kms. 4.0N, 128.2E North of Halmahera Mag: 5.7 (USCGS) 5.9 (FA)

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MARCH						
422	5	iPNEZ iSNEZ	16	14 17	14 36	1,995	H = 16-11-12.2 Depth: 49 kms 4.1N, 128.4E North of Halmahera Mag: 5.1 (USCGS)
423	5	iPNEZ iSNEZ	18	32 32	20 35.3	137	
424	5	iPNEZ iSNEZ	19	42 48	00 53	5,520	H=19-33-23.0 36.4N, 70.7E Depth: 208 kms. Hindu Kush Region Felt at Kabul, Afghanistan Mag: 5.9 (USCGS)
425	6	iPNEZ iSNEZ	01	09 11	08 40	1,355	H = 01-06-01.2 Depth: 39 kms. 4.2 N, 128.3E North of Halmahera Mag: 5.1 (USCGS)
426	6	iPNZ iSNZ	03	29 31	16 48	1,353	H = 03-25-55.1 Depth: Normal 4.3N, 128.4E North of Halmahera Mag: 5.0 (USCGS)
427	6 ✕	iPNZ iSNZ	07	41 42	58.2 16.2	156	H=07-41-31.2 ✕ Depth: Normal 15.8N, 121.8E Luzon, Philippine Island Mag: 4.8 (USCGS) Felt: Baler - Int. IV Casiguran & Caba- natuan City - Int. II, Manila - Int. II
428	6	ePN eSN	11	31 32	28 06	336	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MARCH						
429	6	eSN	18	31	28		Small, local
430	6	eIPN iSN	20	58	11 25.8	128	
431	7	iPN iSN	00	09	04 28.2	212	
432	7	eSNE	10	40	45		Very small
433	7	ePNEZ eSNEZ	17	04 05	09 14	578	
434	7	ePNEZ eSNEZ	18	10 11	50 54	569	
435	7	eXNEZ	22	58	32		Teleseismic H=22-55-31.5 Depth: 67 kms. 5.0N, 127.7E Philippine Island Region Mag: 5.2 (USCGS)
436	8	iPN iSN	02	27	11.6 18.2	55	
437	8	eSNZ	13	09	53		Teleseismic
438	8	iPNZ iSNZ	13	53 57	17 37	2,870	
439	8	iPNZ iSNZ	14	44 48	19 33	2,660	
440	8	eXN	15	59	06		
441	9	eSE	05	55	55		Very small
442	9	eXEZ	10	26	22		

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	MARCH						
443	9	ePEZ eSEZ	11	33 37	24 22	2,090	H=11-35-30.4 Depth: 388 kms. 48.1N, 148.3E Northwest of Kurile Islands Mag: 5.1 (USCGS), 4.8 M. (BRK)
444	9	ePE	20	58	11		Small, local
445	10	ePNEZ eSNEZ	05	37 39	18 48	1,336	
446	10	eSZ	05	57	04		Very small
447	10	iPNZ iSNZ	07	00 05	36 36	3,340	H=06-54-17.6 5.6S, 147.2E Depth: 206 kms. East New Guinea Region, Mag: 5.8 (USCGS), 6 M. (BRK)
448	10	eSZ	14	40	30		Small, local
449	10	ePZ	18	09	47		Small, local
450	11	eSZ	11	49	20		Very small
451	11	iPZ eiSZ	14	16 17	54 09.2	131	
452	11	iPZ eSZ	15	40 40	40 58	156	
453	12	ePZ eSZ	22	35 38	56 20	1,280	H=22-34-17.1 Depth: 76 kms. 10.1N, 125.8 E Leyte, Philippines Mag: 4.8 (USCGS)

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MARCH						
454	13	iPNZ iSNZ	15	12 13	58 21	201	Felt: Casiguran - Int. IV
455	13	ePZ	19	20	19		Small, local
456	13	ePZ eSZ	20	44 48	42 19	2,180	H=20-40-12.5 Depth: 502 kms. 5.5S, 110.4E Java Sea Mag: 5.2 (USCGS)
457	13	eSZ	22	56	15		Small, local
458	13	iPZ iSZ	22	43 43	24.5 44.5	175	
459	14	ePZ	22	08	00		Small, local
460	14	iPNZ iSNZ	22	49 55	04 08	3,400	
461	15	eXZ	14	04	18		Teleseismic
462	15	iPNZ iSZ	16	00 08	31 18	6,460	
463	16	iPNZ iSNZ	23	01 03	38 05	775	H=22-59-47.9 Depth: 145 kms. 21.9N, 121.6E Taiwan Region Mag: 4.6
464	17	ePN iSN	02	53 53	16 33.5	152	
465	18	ePN eiSN	01	20 20	21 38	148	
466	18	iSN	01	25	50		Small, local
467	18	iPNZ eiSZ	03	31 36	28 52	3,780	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE	REMARKS
			h	m	s		
	1969 MARCH						
468	18	eXZ	04	02	24		Teleseismic
469	18	iPN	09	09	36		Small, local
470	18	iPNZ iSNZ	17	13	09.4 13 50.6	365	
471	18	eiPN eiSN	19	35 36	59 42	380	
472	18	iPN iSN	21	26	25.6 46.5	182	
473	19	iSN	00	07	19		Small, local
474	19	ePZ	06	14	06		Teleseismic
475	19	ePZ	06	34	22		Teleseismic
476	19	ePZ	10	19	08		Teleseismic
477	19	eXN	14	14	52		Teleseismic
478	19	iPNZ iSNZ	14	02	59.6 05 52.2	1,540	
479	19	iPNZ eiSNZ	16	07 08	32 12	354	H=16-06-47.8 Depth: 80 kms. 14.0N, 123.9E Luzon, Philippines Mag: 5.4 (USCGS) Virac - Int. III
479	19	iPN iSN	16	16 17	30 12.3	373	Felt: Aparri - Int. III
480	19	eSN	20	46	18		Small, local
481	19	eSN	21	26	18		Very small
482	20	iPNZ	09	08	20		Teleseismic

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE	REMARKS
			h	m	s		
	1969 MARCH						
483	20	iPNZ iSNZ	16	21 23	01 56	1,560	H=16-18-56.4 Depth: Normal 8.7N, 127.3E Philippine I- sland Region Mag: 6.1 (HSCGSO, 6.1 (PAS), 5.8 (GOL)
484	20	ePNZ eSNZ	23	41 42	09 32	740	H=23-38-40.6 Depth: Normal 8.8N, 127.3E Philippine Island Region Mag: 5.1 (USCGS)
485	21	iPN	00	39	48		Small, local
486	21	eXZ	03	21	12		Teleseismic
487	21	eXZ	04	44	52		Teleseismic
488	21	eXZ	05	24	44		Teleseismic
489	21	eXZ	05	47	06		Teleseismic
490	21	eXZ	06	24	32		Teleseismic
491	21	eXZ	07	25	02		Teleseismic
492	21	eXZ	08	12	04		Teleseismic
493	21	eXZ	10	29	00		Teleseismic
494	21	eXZ	11	01	12		Teleseismic
495	21	ePN eSN	11	41 41	09.8 20.2	88	
496	21	iPNZ iSNZ	11	59 59	24.8 43.2	160	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MARCH						
497	21	iPN iSN	12	18	25.3 43.2	155	
498	21	eXZ	17	20	36		Teleseismic
499	21	eSN	19	30	50		Very small
500	21	ePN	19	36	44		Very small
501	21	iPN	22	19	50		Small, local
502	22	eXZ	06	16	16		Teleseismic
503	22	eXZ	08	16	40		Teleseismic
504	22	eSN	11	34	52		Very small
505	22	eXZ	14	05	20		Teleseismic
506	22	eXZ	15	57	08		Teleseismic
507	22	iPNZ iSNZ	17	34 37	50 52	1,780	H=17-31-07.0 Depth: 42 kms. Northern Celebes Mag: 5.2 (USCGS) 0.7S, 122.5E
508	22	ePN iSN	22	20	19.4 36.6	150	
509	23	ePNZ eSNZ	10	00	30.6 50.8	176	
510	23	ePZ eSZ	12	12	44 50	1,830	
511	23	eXZ	13	56	23		Teleseismic
512	23	eXZ	22	02	46		Teleseismic
	24						NO QUAKE RECORDED

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	MARCH						
513	25	ePZ eSZ	01	03 06	22 00	1,410	
514	25	iPZ	13	33	56		Teleseismic H = 13-28-49.8 Depth: 40 kms. Turkey Mag: 4.8 (USCGS) Felt throughout Western Anatolia & Istanbul
515	26	eXZ	10	00	00		Teleseismic
516	26	iPNZ iSNZ	15	28 28	12.5 37.0	215	<i>Utco 1: 17 24 0 6</i> Felt: Casiguran & Manila - Int. IV, Baler, Infanta & Quezon City - Int. III, Alabat - Int. II
516	26	eXNZ	19	27	36		Teleseismic
517	27	eXZ	04	23	52		Teleseismic
518	27	iPNZ iSNZ	04	49 52	50 34	1,465	H=04-46-26.1 Depth: Normal 3.9N, 128.5E North of Halmahera Mag: 5.7 (USCGS)
519	27	ePNZ eiSNZ	12	11 11	40 56	138	
520	27	iPNZ iSNZ	12	44 46	32 56	1,285	H = 12-41-35.9 ✓ Depth: 32 kms. 4.8N, 127.5E Talaud Islands Mag: 6.1 (USCGS), 7.0 (PAS), 6.8 (BRK) Felt: Gen. Santos - Int. III

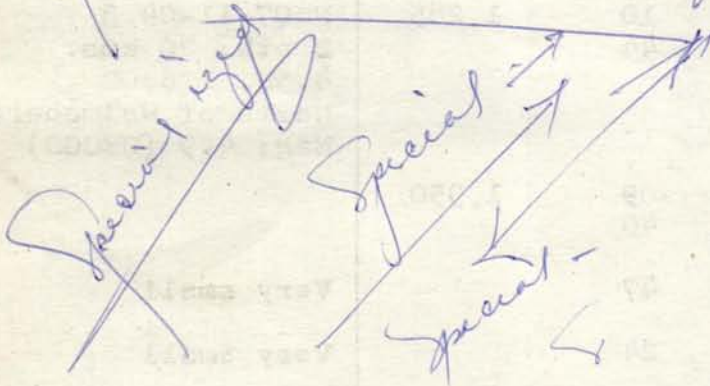
NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	MARCH						
521	27	iSN	16	43	28		
522	27	iSN	18	18	02		
	27						Int. I Quake felt in Alabat at 2145Z, not recorded
523	28	iPNZ iSNZ	02	01 11	00 24	9,600	H=01-48-30.4 Depth: 9 kms. 38.6N, 28.4E Turkey Mag: 6.4 (PAS), 6 $\frac{1}{4}$ (BRK), 6 $\frac{1}{2}$ - 6 $\frac{3}{4}$ (GOL); 6.0 (USCGS) 53 killed and heavy damage at Alasekir, Sarigol & Kiraz, Felt throughout West- ern Anatolia & at Istanbul
524	28	ePNZ	05	31	34		Teleseismic
525	28	eiPNZ iSNZ	08	47 47	05 05	282	
526	28	eiPNZ iSNZ	09	07 07	07 39	282	
527	28	eSN	09	45	48		Very small
528	28	ePNZ	11	35	32		Teleseismic
529	28	ePZ eSZ	16	00 10	52 54	9,200	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	MARCH						
530	28	iSN	19	05	10		Small, local
531	29	iPN iSN	03	53	11 32	182	
532	29	iPN iSN	05	36	40 03	201	
533	29	ePN	06	43	11		Teleseismic Int. II Quake felt at Basco at 0800Z, not recorded
534	29	ePN	09	27	36		Teleseismic H = 09-15-54.1 Depth: Normal 12.0N, 41.2E Ethiopia Mag: 5.8 (USCGS), 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ (GOL) 24 killed & 165 injured at Sardo, Sardo completely destroyed
535	29	eXN	13	17	35		Teleseismic H = 13-08-11.4 Depth: 4 kms. 11.9N, 41.5E Ethiopia Mag: 5.6 (USCGS)
536	30	eSN	05	41	45		Very small
537	30	iPN	06	42	58		Very small

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MARCH						
538	30	iPNZ iSNZ	07	14 16	10 44	1,285	H=07-11-04.3 Depth: 70 kms. 4.5N, 128.0E North of Halmahera Mag: 4.9 (USCGS)
539	30	iPNZ iSNZ	07 08	58 00	09 40	1,350	
540	30	iPN	18	24	47		Very small
541	30	eSN	18	38	24		Very small
542	30	iPNZ iSNZ	20 21	59 02	12 14	1,265	H=20-56-59.2 Depth: 61 kms. 4.7N, 127.6E Talaud Islands Mag: 5.1 (USCGS)
543	30	iPN iSN	22	01 01	30 51.5	188	
544	31	iPNZ iSNZ	07	28 38	10 18	9,320	
545	31	iPNZ iSNZ	07	34 34	10.2 29.6	169	
546	31	eSN	10	13	55		Very small
547	31	iPNZ iSNZ	19	30 34	37 40	2,520	H=19-25-27.2 38.3N, 134.6E Depth: 417 KMS. Sea of Japan Mag: 5.9 (USCGS), 6.5 (PAS), 6.4 (BRK), 5½ (COL) Two shocks ap- parently occurred w/in extremely small intervals of time & space. The small event

~~Samoa Ambury~~

Tuvalu, Ugiam P.
 Tuvalu, Ugiam P.
 Picture frame
 Tuvalu



Ventuz - Navy - Phil.
 Zuzaya
 Macalincog
 Pudar
 Tuvalu
 Abced

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MARCH						of Mag: 4.2 Mb occured about 3.5 secs. Be- fore the Larger Quake of Mag: 5.9 Mb. The Epi- center is based on data from the earlier shock, while the Depth ob- tained from (pP) intervals pertains to the larger Quake.
548	31	1PNZ 1SNZ	22	46 47	57.8 16.2	160	

11 MAY 1970

Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 Quezon City

No. 236
 $\phi = 14^{\circ}40'$

$\lambda = 121^{\circ}05'E$
 (INSTRUMENTS)

April 1969

No.	SEISMOMETER	COMPONENTS	(GALVO) PERIOD	(SEISMO) PERIOD	MAGNIFI- FICATION	REMARKS
1	HOSAKA	N - S	1/13 sec.	5 secs.	1,000	SMOKE PAPER TYPE
	Electro- Magnetic	E - W	1/13 sec.	5 secs.	1,000	
		VERTICAL	1/13 sec.	5 secs.	1,000	
1	ISHIMOTEO	N - S		0.1	174	SMOKE PAPER TYPE
		E - S		0.1	174	
		VERTICAL		0.1	179	
1	WOOD ANDERSON	N - S		0.8	2,000	TORSION
1	SPRENGNETHR	N - S	7.2	3.5	3,000	VISUAL
STANDARD SEISMOMETERS						
1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,000	
1	BENIOFF	VERTICAL	0.75	1.0	12,500	
1	SPRENGNETHR	N - S	100	15	1,500	
1	SPRENGNETHR	E - W	100	15	1,500	
1	SPRENGNETHR	VERTICAL	100	15	1,500	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	APRIL						
549	1	iSN	03	18	52		Small, local
550	1	eSN	04	40	00		Very small
551	1	iPN iSN	08	13	14 32.8	163	
552	1	eSN	10	58	13		Small, local
553	1	eSN	12	42	25		Small, local
554	1	eSN	23	28	37		Small, local
555	2	ePN	03	56	54		Small, local
556	2	ePN	06	26	06		Small, local
557	2	eSN	12	09	22		Small, local
558	2	eSN	12	57	00		Very small
559	2	iPN iSN	14	17	40 45.2	42	
560	2	ePN eISN	14	54 55	52 30	336	
561	2	iPNZ iSNZ	19	30 31	52 10.8		Felt: Calapan - Int. III, Manila - Int. II
562	3	eSN	01	56	49		Small, local
563	3	eSN	02	11	31		Small, local
564	3	eSN	08	08	31		Small, local
565	3	eiPN iSN	10	24 25	38 07	255	
567	3	iPNZ iSNZ	15	07 11	42 45	2,520	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	APRIL						
568	3	iSN	15	28	53		Small, local
569	4	iPNZ iSNZ	13 14	58 00	03 24	1,255	
570	4	eXZ	17	10	00		Teleseismic
571	4	eXNZ	18	16	03		Teleseismic
572	4	ePN eSN	19	26 27	17 29	641	
573	5	eiPNZ eiSNZ	02	30 40	28 24	9,100	H=02-16-12.5 Depth: 96 kms. 60.3N, 152.7W South Alaska
574	5	eiPNZ	03	47	27		Teleseismic
575	5	eiPNZ eiSNZ	04	07 11	18 20	2,510	
576	5	eXZ	06	29	44		Teleseismic
577	5	iPN	09	49	28		Small, local
578	5	eiPN iSN	20	44 44	10 32.2	194	
579	5	iPN iSN	23	46 46	16.2 44.4	158	
580	6	eSN	00	22	38		Very small
581	6	eXZ	00	34	52		Teleseismic
582	6	iPN iSN	01	24 24	21 48.5	242	
583	6	eiPN iSN	01	27 27	37 55.5	161	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			H	m	s		
	1969						
	APRIL						
584	6	eSN	06	33	40	?	Small, 10cal
585	6	iPNZ iSNZ	09	35 36	47 13.4	232	H=09-50-09.2 13.30, 122.5E Depth: 18 kms. Luzon, Phil. Islands Mag: 4.8 (USCGS) Felt: Casiguran - Int. III
586	6	iPN iSN	13	10 10	33.6 53.2	171	
587	7	iPNZ iSNZ	03	42 45	44 14	1,335	
588	7	iPNZ iSNZ	17	02 02	30 45	130	
589	7	ePNZ	20	36	52		Teleseismic
590	8	eSN	08	22	20		Very small
591	8	ePZ eSZ	10	25 29	29 16	2,300	H = 10-19-54.7 40.2N, 143.1E Depth: 57 kms. Off Eastcoast of Honshu, Japan Mag: 4.5 (USCGS)
591	8	ePN	18	07	18		
592	9	eXZ	13	09	00		Teleseismic
593	10	iPN iSN	06	55 56	44 06	192	
594	10	ePZ eSZ	14 15	59 03	20 50	2,860	
595	10	iPN eiSN	22	00 02	24 32	1,143	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	APRIL						
596	11	eIPZ eiSZ	02	34 35	56 17	183	
597	12	ePN	08	24	25		
598	12	eXZ	09	56	04		Teleseismic
599	12	iPNZ iSNZ	10	47 48	02 39	865	H=10-45-16.9 10.2N, 126.3E Depth: 11 kms. Phil. Island Region Mag: 5.3 (USCGS)
600	13	iPNZ iSNZ	05	43 44	35 49	660	H=05-42-22.1 19.3N, 120.8E Depth: 35 kms. Phil. Island Region Mag: 4.9 (USCGS)
601	13	eXZ	09	02	16		Teleseismic Depth 41 kms.
602	13	iPNZ iSNZ	13	16 19	29 44	1,940	H=13-12-37.1 29.3N, 129.5E Ryuku Islands Mag: 5.0 (USCGS)
603	13	iPNZ iSNZ	15	32 38	23 42	4,840	H=15-24-55.6 Depth 41 kms. 17.9N, 80.6E India Mag: 5.3 (USCGS)
604	13	iPNZ iSNZ	23	38 42	07 00	2,380	
605	14	iPNZ iSNZ	05	16 16	32 59	237	
606	14	eIPN iSN	12	25 25	04.2 13.2	76	

No.	DATE	PHASE	GREENWICH TIME			DISTANCE kms.	REMARKS
			h	m	s		
	1969 April						
607	15	eSN	00	29	20		
608	15	ePZ eSZ	17	37 42	16 22	3,440	H=17-50-20.8 Depth 31 kms. 6.5N, 143.0E New Guinea Mag: 5.3 (USCGS)
609	15	iPNZ iSNZ	22	19 22	21 02	1,440	
610	16	iPZ iSZ	01	29 35	32 22	4,320	H=01-22-47.5 Depth 39 kms. 3.5S, 151.0E New Ireland Reg. Felt at Kavieng, Lassul & Rabaul New Britain Mag: 5.7 (USCGS) 6 $\frac{1}{4}$ (PAS), 6-6 $\frac{1}{4}$ (BRK)
611	16	iPZ iSZ	12	28 36	46 14	6,120	H=12-19-40.1 Depth 153 kms. 13.6S, 166.9E New Hebrides Is. Mag: 5.7 (USCGS)
612	16	ePZ	22	33	20		
613	17	ePZ eSZ	05	02 08	41 21	4,020	H=04-56-15.9 Depth 33 kms. 39.5N, 143.4E Off east coast of Honshu, Japan
614	18	iPZ iSZ	12	37 41	12 12	2,470	H=12-32-03.4 Depth 33 kms. 4.5S, 122.7E West New Guinea Region Mag: 5.5 (USCGS)

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 APRIL						
615	19	iPZ iSZ	08	50 55	56 54	3,280	H=08-45-16.0 6.2S, 103.9E Depth: 40kms. Southwest of Sumatra Mag: 5.7 (USCGS)
616	19	ePZ eSZ	15	45 45	05 36	273	
617	19	eXZ	22	13	20		H=22-07-46.8 25.5N, 123.2E Depth: 61 kms. Northeast of Taiwan Mag: 4.7 (USCGS) Teleseismic
618	20	eXZ	05	00	47		Teleseismic
619	21	ePZ	02	41	08		Teleseismic
620	21	eXZ	03	21	10		Teleseismic
621	21	iPZ iSZ	07	24 27	00 54	2,420	
	22						Quake felt in Dumaguete City - Int. III, not recorded
	23						No record run made, Instruments out of Order. One quake felt in Gen. Santos at 0746 Z of Int.I
622	24	eSN	15	36	34		

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 APRIL						
623	24	eXZ	22	45	54		H=22-41-57.5 10.1N, 125.9E Depth: 81 kms. Leyte, P.I. Mag. 4.6 (USCGS) Teleseismic
624	25	eSN	00	09	35		
625	25	eSN	02	01	37		Small, local
626	25	eXN eSN	12	38 39	43.6 03.2	171	
627	26	ePZ	03	54	13		
628	26	eXZ	04	43	32		Teleseismic
629	26	ePZ eSZ	21	23 26	38 50	2,050	
630	27	ePNZ	01	40 44	36 00	2,150	H=01-37-14.5 0.9N, 120.1E Depth: 12 kms. Northern Celebes Mag: 5.4 (USCGS)
631	28	ePNZ	00	51 55	31 54	2,150	H=00-46-25.6 13.3N, 145.1E Depth: 51 kms. Mariana Islands Mag: 5.3 (USCGS)
632	28	ePZ	07	55	00		Teleseismic
633	28	ePZ eSZ	19	47 56	04 52	8,940	H = 19-39-05.5 7.9S, 158.8E Depth: 77 kms. Solomon Islands. Mag: 5.7 (USCGS), (Brk) 53/4 Felt at Honiara

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 APRIL						
635	29	eXZ	00	10	04		Teleseismic
636	30	iPZ	04	57	34		
637	30	ePZ	07	16	38		
638	30	eXZ	11	32	50		Teleseismic
639	30	eXZ	13	02	44		
640	30	ePZ eSZ	21	33 35	28 32	1,107	H=21-31-25.2 7.5N, 124.9E Depth: 34 kms. Mindanao, P.I. Mag: 5.8 (USCGS)

11 MAY 1970

Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 Quezon City

 No. 237
 $\phi = 14^{\circ}40'$
 $\lambda = 121^{\circ}05'E$
 (INSTRUMENTS)

May 1969

No.	SEISMOMETER	COMPONENTS	(GALVO) PERIOD	(SEISMO) PERIOD	MAGNIFI- CATION	REMARKS
1	HOSAKA Electro- Magnetic	N - S	1/13 sec.	5 secs.	1,000	SMOKE PAPER TYPE
		E - W	1/13 sec.	5 secs.	1,000	
		VERTICAL	1/13 sec.	5 secs	1,000	
1	ISHIMOTO	N - S		0.1	174	SMOKE PAPER TYPE
		E - S		0.1	174	
		VERTICAL		0.1	179	
1	WOOD ANDERSON	N - S		0.8	2,000	TORSION
1	SPRENGNETHER	N - S	7.2	3.5	3,000	VISUAL
STANDARD SEISMOMETER						
1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,000	
1	BENIOFF	VERTICAL	0.75	1.0	12,500	
1	SPRENGNETHER	N - S	100	15	1,500	
1	SPRENGNETHER	E - W	100	15	1,500	
1	SPRENGNETHER	VERTICAL	100	15	1,500	

No.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MAY						
641	1	eXZ	03	44	25		Teleseismic
642	1	ePNZ eSNZ	11	55 57	05 25	1,245	H=11-52-30.1 Depth: 230 kms. 5.1N, 125.2E Mindanao, Phil. Is. Mag. 5.2 (USCGS)
643	1	ePNZ eSNZ	16	38 40	13 54	1,435	H=16-34-58.9 Depth: 62 kms. 1.3N, 120.5E Northern Celebes Mag: 5.5 (USCGS)
645	1	ePNZ eSNZ	19	16 18	24 16	1,000	
	2						NO QUAKE RECORDED
646	3	eSN	07	37	28		Small, local
647	3	iPN	11	45	06		Very small
648	4	ePE	15	17	11		Small, local
649	4	iPNZ eisNZ	12	46 54	22 20	6,660	H=12-36-33.4 Depth: 11 kms. 17.4S, 168.9E New Hebrides Is. Mag: 5.5 (USCGS) Felt: Portvila
650	4	iPNEZ iSNEZ	17	22 24	03 54	1,525	H=17-18-38.8 Depth: 165 kms. 0.0N, 123.3E Northern Celebes Mag: 5.5 (USCGS)
651	4	eiPE eiSE	17	37 38	51.5 27.5	318	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	MAY						
652	4	ePE	18	53	58		Small, local
653	4	ePE	23	22	29		Small, local
654	5	eSE	00	01	48		Small, local
655	5	eSN	08	02	07		Very small
656	5	eSN	08	06	00		Small, local
657	5	eXNZ	14	48	12		Teleseismic
658	6	eIPNE iSNE	00	56 56	19.2 36.3	148	
659	6	iPNE iSNE	01	51 52	54 10.5	143	
660	6	eSNE	02	32	46		Very small
661	6	eSNE	03	18	30		Small, local
662	6	ePNE eiSNE	18	23 23	22 37.5	134	
663	6	eIPNE iSNE	18	29 29	06.2 35.0	252	
664	6	eSNE	18	39	09		Small, local
665	6	eIPNE iSNE	19	27 27	21.5 34.0	107	
666	6	iPNE iSNE	21	30 31	44.8 17.3	287	
667	6	iPNE iSNEZ	21	52 53	28.3 04.0	315	
668	6	iPNEZ iSNEZ	21	57 57	11.5 26.0	125	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MAY						
669	6	eSNE	23	37	14		Small, local
670	7	iPNE iSNE	07	41 42	54 37	380	
671	7	iPNEZ iSNEZ	08	53 54	58 48	444	Felt; Tacloban City and Cataman Int. IV; Virac and Catbalogan Int. III
672	7	iPNE iSNE	10	34 34	39.5 55.2	136	
673	7	ePNEZ eSNEZ	13	53 57	16 25	2,360	H=13-48-28.4 Depth: N 6.9S, 122.5E Flores Sea Mag. 4.9 (USCGS)
674	7	iPNE iSNE	14	42 42	42 59	148	
675	8	ePZ	01	55	18		H=01-50-02.7 Depth: 54kms 13.3N, 144.9E Mariana Is. Mag. 5.1 (USCGS) Felt on Guam Teleseismic
676	8	ePZ	13	32	45		Small, local
677	8	iPZ eISZ	17	36 37	54 18	192	
678	9	iPNEZ iSNEZ	02	10 11	45 05.5	178	H=02-10-21.0 Depth: 64kms 14.7N, 119.6E Luzon, Phil. Is. Mag. 4.7 (USCGS)

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MAY						
679	9	iPNEZ iSNE	09	16 16	31 44.4	115	
680	9	eSNE	11	53	40		Small, local
681	9	eSNE	19	00	37		Very small
682	10	eiPNEZ iSNEZ	07	09 10	49 06	143	
683	10	iPNEZ eiSNEZ	12	31 31	02 48	408	
684	10	iPNEZ	18	30	41		Small, local
685	10	iSNEZ	19	59	34		Small, local
686	10	iPNEZ iSNEZ	21	23 23	00 36	318	
	11						NO QUAKE RECORDED
687	12	iPNEZ	01	13	13		Small, local
688	12	eSNEZ	06	58	08		Small, local
689	12	eSEZ	14	22	15		Small, local
690	12	iSEZ	21	51	15		Small, local
691	12	iPEZ iSEZ	21	55 55	11 32.5	188	
692	12	eSE	22	12	15		Very small
693	13	iPNZ iSNZ	14	34 37	38 18	1,425	
694	13	iPNZ iSNZ	16	33 33	14 34.4	178	
695	13	iPN eiSN	18	27 28	39 12	291	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MAY						
696	13	eXZ	18	48	16		Teleseismic
697	14	iPNEZ iSNEZ	19	42 51	58 15	7,050	H=19-32-54.2 Depth: 21kms 51.3N, 179.9W Andreanof Is., Aleutian Ia. Felt: Adak and Amchitka Mag. 6.2 (USCGS), 6.8 (BRK) 6.5 ML (CGS)
698	14	eSNEZ	23	41	35		Very small
699	15	eiPNEZ iSNEZ	02	10 11	50.8 13.3	197	
700	15	eiPNEZ iSNEZ	06	40 41	46 20	300	
701	15	iPNEZ iSNEZ	07	53 53	31 52.4	187	H=07-53-03.8 Depth: 57 kms. 16.1N, 121.9E Luzon, Phil. Is. Mag. 5.2 (USCGS) Felt: Infanta- Int. IV Baler - Int. III Cabamatuan and Baguio Cities - Int. II
702	15	eSNEZ	09	42	51		Small, local
703	15	eiPNEZ iSNEZ	09	57 57	18 22.7	38	
704	15	eSNEZ	10	02	50		Small, local
705	15	ePNEZ	21	03	32		Teleseismic
706	15	eXNEZ	22	54	48		Teleseismic

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MAY						
707	15	eSNEZ	22	19	57		Small, local
708	15	iPNEZ iSNEZ	22	42 46	46 26	2,230	H=22-38-23.2 7.2S, 120.3E Flores Sea Mag. 5.3 (USCGS) Depth: 463 kms.
709	16	eSNEZ	06	54	44		Small, local
710	16	ePNEZ	07	14	52		Teleseismic
711	16	iSNEZ	08	04	17		Small, local
712	16	eSNEZ	08	45	20		Very small
713	16	eSNEZ	10	24	34		Small, local
714	16	eXNZ	16	32	00		Teleseismic
715	16	ePNEZ	19	42	17		Very small
716	16	eSNZ	22	45	11		Very small
717	16	iPNEZ iSNEZ	22	50 50	17 35	156	
718	17	iPNEZ iSNEZ	16	25 25	10.2 26.5	141	
719	17	iPNEZ iSNEZ	18	45 46	54.7 16.3	188	
720	17	iPNEZ iSNEZ	21	41 41	25.2 47.0	200	
721	17	ePNEZ eSNEZ	23	14 14	35 57	192	
722	17	eSNEZ	23	58	16		Very small

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MAY						
723	18	iPNEE	00	23	43		H=00-15-31.5 Depth: 16 kms. 9.0S, 158.4E Solomon Is. Mag. 5.6(USCGS) Felt: Honiara
724	18	iPN iSN	04	34 34	00 17.4	151	
725	18	eFN	06	58	40		
726	18	iPN iSN	14	30 30	33.4 49.4	138	
727	19	iPN iSN	01	11 11	14 31	148	
728	19	iSN	05	19	54		
729	19	iSN	06	50	30		
730	19	eXN	07	32	45		
731	19	eiPN eiSN	11	39 39	32 52	175	
732	19	iSN	13	40	17		
733	20	eiPN iSN	03	12 13	52.6 13.0	178	
734	20	eXN	13	40	05		
735	21	ePNE eSNE	02	58 59	22 48	765	H=02-56-49.2 Depth: 26 kms. 11.7N, 125.8E Samar, Phil. Is. Mag. 5.2(USCGS) Felt: Tacloban Cit Int. II Catbalogan - Int. I

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MAY						
736	21	eSNEZ	23	57	44		Small, local
737	22	eSNEZ	00	20	18		Very small
738	22	iPNEZ iSNEZ	02	26 27	36 10	300	Felt: Legaspi City Int. I
739	22	eIPNEZ iSNEZ	02	31 31	17 59	372	
740	22	iPNEZ iSNEZ	02	48 49	53 30.7	333	
741	22	iPNEZ iSNEZ	05	32 32	35 55	175	
742	23	eXNZ	13	25	24		Teleseismic
743	23	eXNZ	14	32	28		Teleseismic
744	23	eIPNEZ iSNEZ	15	08 08	05 24.5	170	H=04-35-59.3 6.6N, 126.6E Mindanao, Phil. Is Mag. 5.0(USCGS)
745	23	iPNEZ iSNEZ	16	13 16	36 56	1,790	H=16-11-21.4 Depth: 66kms. 7.4N, 126.8E Mindanao, Phil. Mag. 4.9(USCGS)
746	23	eXNZ	17	20	00		Teleseismic
747	23	iPNEZ iSNEZ	19	31 31	26 48.6	198	
748	24	eIPNEZ iSNEZ	13	22 22	06 22.5	143	
749	24	eSNEZ	18	09	29		Very small

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MAY						
750	25	iSNEZ	09	33	33		Small, local
751	25	iSNEZ	22	27	58		Small, local
752	25	iSNEZ	22	48	30		Small, local
753	26	ePNEZ	01	30	28		
754	26	iPNEZ iSNEZ	09	15 16	54 14	210	
755	26	iPNEZ iSNEZ	15	38 40	42 00	694	H=15-37-16.8 Depth: 14 kms. 11.8N, 125.8E Samar, Phil. Mag. 5.2(USCGS) Felt: Catbalogan Int. IV Tacloban City Int. II
756	26	iPNEZ iSNEZ	16	41 42	07 20	651	H=16-39-38.3 11.8N, 125.8E Samar, Phil. Depth: N Mag. 5.2(USCGS)
757	26	ePNEZ	17	12	45		
758	26	ePNEZ	18	02	11		
759	26	iPNEZ iSNEZ	18	50 51	09 21	640	H=18-48-40.3 Depth: N 11.7N, 125.8E Samar, Phil. Mag. 5.1(USCGS)
760	26	eiPNEZ eiSNEZ	19	48 49	17 32	668	H=19-46-51.0 Depth: N 11.7N, 125.8E Samar, Phil. Mag. 5.0(USCGS)

No.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 MAY						
761	26	iPNEZ iSNEZ	20	25 26	58.5 23.0	215	
762	26	ePZ eISNEZ	20	47 48	46 22.5	322	
763	27	ePNEZ eSNEZ	01	25 26	27 30	656	
764	27	eXNZ	05	25	16		
765	27	ePNZ eSNZ	08	23 26	12 24	1,900	
766	27	ePNZ eSNZ	09	30 35	50 04	2,660	H=09-27-03.8 Depth: N 0.2S, 125.0E Molluca Sea Mag. 5.3(USCGS)
767	27	eiPNEZ eiSNEZ	11	38 38	10 37.5	152	
768	27	ePNZ	13	09	48		
769	27	eXNZ	13	18	36		
770	27	eXNZ	15	26	48		Teleseismic
771	28	iPNEZ iSNEZ	03	42 43	33 56.4	745	H=03-41-01.8 Depth: 6 kms. 11.8N, 125.8E Samar, Phil. Mag. 5.3(USCGS) Felt: Catarman Int. II
772	28	ePNZ eSNZ	06	24 25	17 10	465	
773	28	eXNZ	06	57	00		

Philippines
COMMERCE AND INDUSTRY
BUREAU
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INTERNATIONAL SEISMOLOGICAL CENTRE
The Geophysics Laboratories
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Edinburgh 9
Scotland

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11 MAY 1970

Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 Quezon City

No. 238
 No. 14 40'

$\lambda = 121^{\circ}05'00''$
 (INSTRUMENTS)

June 1969

No.	SEISMOMETER	COMPONENTS	(GALVO) PERIOD	(SEISMO) PERIOD	MAGNIFI- CATION	REMARKS
1	HOSAKA Electro- Magnetic	N - S	1/13 sec.	5 secs.	1,000	SMOKE PAPER TYPE
		E - W	1/13 sec.	5 secs.	1,000	
		VERTICAL	1/13 sec.	5 secs.	1,000	
1	ISHIMOTO	N - S		0.1	174	SMOKE PAPER TYPE
		E - S		0.1	174	
		VERTICAL		0.1	179	
1	WOOD ANDERSON	N - S		0.8	2,000	TORSION
1	SPRENGNETHER	N - S	7.2	3.5	3,000	VISUAL

STANDARD SEISMOMETER

1	BENIOFF	N - S	0.75	1.0	12,000
1	BENIOFF	E - W	0.75	1.0	12,000
1	BENIOFF	VERTICAL	0.75	1.0	12,500
1	SPRENGNETHER	N - S	100	15	1,500
1	SPRENGNETHER	E - W	100	15	1,500
1	SPRENGNETHER	VERTICAL	100	15	1,500

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
788	1	eSZ	02	02	22		Small, local
789	1	ePNEZ eSNEZ	02	08 09	17 08	452	
790	1	iPZ eiSZ	05	59 59	08 31	201	
791	1	iPNZ iSNZ	13	52 55	10 06	1,570	H= 13-49-06 3.3N, 126.6E Depth: 46 kms. Talaud Islands Mag: 5.3 (USCGS)
792	1	iPNZ iSNZ	14	09 09	20.6 50.6	246	
793	1	ePZ eSZ	22	45 46	49 13	210	Felt: San Francisco (Aurora), Quezon - Int. II
794	2	ePNZ eSNZ	04	45 48	00 40	1,965	
795	3	iPNEZ iSNEZ	08	33 38	28 11	2,530	
796	3	iPNEZ iSNEZ	13	27 28	34 37	560	H=13-26-07.7 12.4N, 125.7E Depth: 48 kms. Samar, Philippines, Mag: 5.0 (USCGS)
797	4	iPNEZ iSNEZ	10	52 52	42.5 56.8	123	
798	4	iPNEZ iSNEZ	12	30 31	59 32	291	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
799	4	iPNEZ iSNEZ	16	46 50	18.7 20.0	2,160	H=16-41-16.8 7.0S, 129.9E Depth: 93 kms. Banda Sea Mag: 5.1 (USCGS)
800	4	eIPNEZ eSNEZ	19	55 56	37.5 07.0	260	
801	4	iPNEZ iSNEZ	20	17 18	48.2 08.6	178	H=20-17-25.6 15.2N, 122.3E Depth: 29 kms. Philippine Islands Region Mag: 5.1 (USCGS) Alabat - Int. II
802	4	eIPNEZ iSNEZ	20	27 27	31 49	156	
803	4	iPNEZ iSNEZ	20	28 29	53 13	175	
804	4	eSNEZ	21	15	39		
805	4	iPNEZ iSNEZ	21	21 21	08 28	175	
806	4	iPNEZ iSNEZ	21	25 26	02 21	165	
807	4	eIPNEZ iSNEZ	21	41 41	10 29	165	
808	4	eIPNEZ iSNEZ	22	13 13	14.5 34.5	175	
809	4	iPNEZ iSNEZ	22	54 55	49 09.5	178	
810	5	eSNEZ	00	40	24		Very small

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	JUNE						
811	5	iPNEZ iSNEZ	00	41	30.5 49.0	161	
812	5	eiPNEZ iSNEZ	05	11	52.5 15.0	197	
813	5	eXNZ	10	57	00		Teleseismic H = 10-59-59.1 7.1S, 129.1E Depth: 156 kms. Banda Sea Mag: 5.1 (USCGS)
814	5	ePNZ eSNZ	17	23 16	34 12	1,410	H = 17-20-16.4 1.9N, 127.4E Halmahera Depth: 97 kms. Mag: 5.2 (USCGS)
815	6	iPNEZ iSNEZ	12	16	47 14	237	Felt: Casiguran .. Int. - II ✓
816	6	iPNEZ iSNEZ	13	07	20.5 44.0	206	
817	6	eiPNEZ iSNEZ	18	15	42 04.2	194	
818	6	iSNEZ	19	34	54		Very small
819	7	iPNEZ iSNEZ	14	20	08.8 25.0	140	
820	7	iPNEZ iSNEZ	19	28	20 44.5	215	
821	7	iPNEZ iSNEZ	22	17	45.3 02.2	147	
822	8	ePNEZ eSNEZ	03	52	14 30	138	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
823	8	iPNEZ iSNEZ	05	02 04	58 08	623	H=05-01-43.2 19.7N, 121.6E Depth: 102 kms. Philippine Is. Region
824	8	eXNZ	12	16	49		Teleseismic H=12-10-16:8 4.2N, 128.3E Depth = 76 kms. North of Halma- hera - Mag: 4.8 (USCGS)
825	8	iPNEZ iSNEZ	18	23 24	40.5 10.5	265	
826	9	eXNZ	01	59	00		Teleseismic H=01-55-00.4 23.7N, 120.9E Taiwan Depth: 46 kms. Mag. 5.0 (USCGS)
827	9	iPNEZ iSNEZ	06	57 02	10 10	3,350	H=06-51-16.1 Depth: 17 kms. 3.2S, 142.9E Near North Coast of New Guinea Mag. 5.2 (USCGS) Felt at Wewak
828	9	iPNEZ iSNEZ	22	02 02	27 49.8	200	Felt: Daet - Int. III, Virac - Int. I Virac Radar - Int. I
829	9	iPNEZ iSNEZ	23	31 32	49 11	192	
830	10	ePNEZ iSN	02	29 29	25.4 40.6	131	
831	10	eiPNEZ iSNEZ	09	56 56	26 42	138	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
832	10	iPNEZ iSNEZ	10	20	03 23.7	180	
833	10	ePNEZ iSNEZ	12	57	54.5 12.0	152	
834	10	iPNEZ iSNEZ	15	30	23 38	130	
835	10	iPNEZ iSNEZ	16	07	56.8 12.6	137	
836	10 ✓	iPNEZ iSNEZ	17	15	56.5 17.3	181	H=17-15-29.4 / 13.2N, 121.4E Depth: 37 kms. Mindoro, Philippine Islands, Mag: 5.4 (USCGS) Felt: Victoria, Or Mindoro - Int. VI Marinduque - Int. V, Gulod, Talisay, Batangas Int. III, Manila- Int. II, Calapan Int. III, Romblon Int. II.
837	10	iPNEZ iSNEZ	17	48	53.5 15.5	192	
838	10	iSN	18	06	46		Small, local
839	10	iSN	18	15	14		Small, local
840	10	ePNEZ eiSNEZ	18	44	21.6 44.0	196	
841	10	iPNEZ iSNEZ	18	47	55 13.7	163	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	JUNE						
842	10	iPNEZ iSNEZ	18	56	11 34.5	206	
843	10	iPNEZ iSNEZ	21	01	11.5 33.5	192	
844	10	eSN	21	18	47		Very small
845	10	iPNEZ iSNEZ	21	51	11 33	192	
846	10	iPNEZ iSNEZ	22	44	25 46	183	
847	10	iPNEZ iSNEZ	23	22	59 19	175	
848	10	iSN	23	37	14		Very small
849	11	eSNEZ	02	42	00		Small, local
850	11	eIPNEZ iSNEZ	04	20	34 58	192	
851	11	ePNEZ eiSNEZ	04	33	43.6 02.6	165	
852	11	ePNEZ eiSNEZ	05	34	19.2 38.8	171	
853	11	eIPNEZ iSNEZ	08	37	43 02.5	170	
854	11	iPNEZ iSNEZ	11	58	27 46.4	169	
855	11	iPNEZ iSNEZ	12	18	24.5 44.5	175	H=12-17-57.0 13.1N, 121.0E Depth: 23 kms. Mindoro, Phil. Mag: 4.7 (USCGS)

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NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						Victoria, Or. Mindoro - Int. IV Maridique - Int. III, Calapan - Int. II
856	11	eSN	12	44	19		Small, local
857	11	iPNEZ iSNEZ	13	16 17	49 09	175	
858	11	eSNEZ	13	45	00		Small, local
859	11	eSNEZ	14	32	33		Small, local
860	11	iPNEZ iSNEZ	14	46 46	05.7 24.0	159	
861	11	iPNEZ iSNEZ	18	27 27	30 41	94	
862	11	eiPNEZ eiSNEZ	18	37 37	11 29.5	161	
863	12	eiPNEZ eiSNEZ	06	44 45	59 16.2	150	
864	12	eiPNZ eiSNZ	07	47 56	56 10	6,980	H=07-41-25.1 40.3N, 143.7E Depth: Normal Off East Coast of Honshu, Japan Mag: 5.1 (USCGS)
865	12	iPNEZ iSNEZ	08	16 17	48 12.5	215	
866	12	eiPNEZ eiSNEZ	09	17 17	28.5 44.5	138	
867	12	eiPNEZ iSNEZ	10	06 06	05.5 26.6	184	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	JUNE						
868	12	iPNEZ iSNEZ	12	24 25	58 21.2	203	H=12-23-44.6 19.3N 120.9E Philippine Island Region Mag: 4.6 (USCGS)
869	12	iPNEZ iSNEZ	12	53 56	51 24	1,362	H=12-51-57.7 9.4N, 126.2E Depth: 69 kms. Mindanao, Philip- pine Islands Mag: 4.9 (USCGS)
870	12	eSNEZ	14	09	57		Small, local
871	12	iPNEZ iSNEZ	15	26 37	18 04	10,020	H=15-13-31.1 34.4N, 25.1E Depth: 25 kms. Mag: 5.8 (USCGS) Crete Felt at Alexander Egypt
872	12	iPNEZ iSNEZ	19	01 04	28.5 05.0	1,393	H=18-59-08.1 24.0N, 122.4E Taiwan Region Depth: Normal Mag: 5.3 (USCGS)
873	12	iPNEZ iSNEZ	19	21 21	13.4 33.0	171	
874	12	iSNEZ	23	14	20		Small, local
875	13	ePN iSN	06	33 34	43 03	175	
876	13	iPN iSN	07	58 59	50 10	175	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
877	13	iPN iSN	08 09	56 03	45 14	5,060	H=08-48-29.5 49.4N, 155.5E Depth: 64 kms. Kurile Islands Mag: 5.9 (USCGS), 6 $\frac{1}{4}$ (PAS), 6 $\frac{1}{4}$ (BRK), 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ (GOL)
878	13	iPN iSN	11	08 09	55 18	201	
879	13	eXN	16	18	00		
880	13	eiPN iSN	16	22 22	19 37	156	
881	14	ePNZ eSNZ	03	31 37	00 28	5,100	H=03-22-56.8 7.9S, 159.0E Depth: 62 kms. Solomon Islands Mag: 6.0 (USCGS) 6.6 (PAS) 5.8 - 6.0 (BRK) Felt at Honiara
	14						H=03-39-45.4 7.1N, 124.0E Mindanao, Phil. Islands Mag: 5.4 (USCGS) Depth: Normal
882	14	eXNZ	09	36	20		Teleseismic H=09-26-10.6 5.6S, 145.5E East New Guinea Region Mag: 5.2 (USCGS) Depth: 114 kms.
883	15	eSNEZ	04	30	14		Small, local

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969						
	JUNE						
884	15	iPNEZ iSNEZ	14	05 05	30 50.5	179	
885	15	iPNEZ iSNEZ	17	02 07	21 21	3,440	H=16-56-32.0 4.7S, 102.2E Depth: 38 Southern Sumatra Mag: 5.3 (USCGS)
886	16	iPNZ iSNZ	15	50 54	28 32	2,530	H=15-45-53.3 4.9S, 125.7E Depth: 38 kms. Banda Sea Mag: 5.4 (USCGS)
887	17	eIPNEZ iSNEZ	03	10 10	15 31.4	142	
888	17	iPNEZ iSNEZ	05	03 03	57.6 24.0	232	
889	17	iSNEZ	07	29	26		Small, local
890	17	eSNE	08	26	30		Small, local
891	17	eIPNEZ iSNEZ	17	45 45	21 42	183	
892	17	eSE	18	41	31		Very small
893	17	iPNEZ iSNEZ	19	31 35	30 28	2,425	H=19-26-28.9 19.ON, 145.5E Depth: 206 kms. Mariana Islands Mag: 5.8 (USCGS) 5.9 (PAS), 5.9 (BRK)
894	18	iPNEZ iSNEZ	00	09 19	55 32	8,720	
895	18	iSNEZ	05	22	15		Small, local

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
896	18	eSNE	16	11	20		Very small
897	18	iPNEZ iSNEZ	20	47 51	00 32	2,920	H=20-43-19.2 0.5N, 126.1E Depth: 5 kms. Molucca Passage Mag: 5.3 (USCGS)
898	18	eSNE	23	50	18		Very small
899	18	ePNZ eSNZ	23 00	55 04	06 00	7,840	H=23-44-11.2 52.6N, 167.9W Fox Islands, Aleutian Islands Mag: 5.4 (USCGS) 5.2 (BRK) Depth 18 kms.
900	19	iPNZ iSNZ	04	34 34	04.5 24.3	173	
901	19	iPNZ iSNZ	05	30 30	13.4 42.4	255	
902	19	iPNZ iSNZ	05	33 34	35 08	291	
903	19	iPNZ iSNZ	07	06 09	50 30	1,430	H=07-03-04.9 28.1N, 130.0E Depth: 45 kms. Ryokn Islands Mag: 5.5 (USCGS)
904	19	iPNZ iSNZ	17	26 26	02.3 23.5	185	
905	19	iPNZ iSNZ	18	40 40	31.8 48.5	145	
906	19	iPNZ iSNZ	19	31 31	14.5 35.4	182	

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NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
907	20	ePNZ eSNZ	02	49 58	05 17	8,200	H=03-00-23.5 20.ON, 64.2W Depth: Normal North Atlantic Ocean Mag: 4.7 (USCGS)
908	20	iPNZ iSNZ	04	25 25	33 52	165	
909	20	eXZ	06	47	11		H=06-44-00.7 2.6N, 128.5E Halmahera Mag: 5.4 (USCGS) Depth: 77 kms.
910	20	iPNZ iSNZ	11	35 35	30.7 50.2	170	
911	20	iPNZ iSNZ	12	19 19	36 54.7	163	
912	20	eSNZ	12	26	38		Small, local
913	20	iPNZ iSNZ	17	30 31	32 04	282	
914	20	iPNZ iSNZ	19	19 19	00 19	165	
915	21	eSNZ	03	54	50		Small, local
916	21						H=04-22-20.8 5.ON, 127.8E Depth: 77 kms. Phil. Is. Region Mag: 4.9 (USCGS)
917	21	iPNEZ iSNEZ	06	38 39	05 08	560	H=06-36-43.1 Depth: 73 kms. 11.3N, 125.3E Samar, Phil. Mag: 5.3 (USCGS)

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						Felt: Tacloban City - Int. IV ✓ Borongan - Int. III Catbalogan - Int. V
918	21	iPNEZ iSNEZ	07	48 49	01 35	300	H=07-47-24.4 13.3N, 122.8E Luzon, Phil. Is. ✗ Mag: 5.2 (USCGS) Depth: 23 kms. Felt: Legaspi City & Virac - Int. III
919	21	iPNEZ iSNEZ	08	32 33	54 32	336	
920	21	eSNEZ	10	56	17		Small, local
921	21	iPNEZ iSNEZ	15	16 20	36 07	2,890	H=15-12-10.0 5.5S, 109.6E Depth: 561 kms. Java Sea Mag: 5.6 (USCGS)
922	21	iPNEZ iSNEZ	17	05 06	44.5 05.0	178	H= 17-05-17.4 14.9N, 119.6E Depth: 33 kms. Luzon, Phil. Is. Mag: 5.0 (USCGS)
923	21	ePNEZ eiSNEZ	18	20 21	46.5 07.5	183	
924	21	iPNEZ iSNEZ	18	25 26	34 06	282	
925	22	ePNZ	03	42	18		Teleseismic
926	22	ePNEZ eSNZ	10	55 03	27 43	7,000	H=10-45-24.5 51.5N, 179.9W Depth: 56 kms. Andreas of Islands Aleutian Is.

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						Felt on Anchitka Mag: 6.1 (USCGS), 5 $\frac{1}{4}$ (BRK)
927	22	eSNEZ	11	54	22		Small, local
928	23	iSNEZ	04	53	07		Small, local
929	23	iSNEZ	07	45	43		Small, local
930	23	iPNEZ iSNEZ	11	07 07	08 29	183	H=11-06-37.8 15.7N, 120.7E Depth: 198 kms. Luzon, Phil. Mag: 4.7 (USCGS)
931	23	eIPNEZ iSNEZ	17	23 24	58 21	201	
932	23	eSNEZ	17	36	48		Very small
933	23	eSNEZ	18	27	16		Very small
934	23	iSNEZ	19	26	25		Small, local
935	23	iSNEZ	20	15	53		Very small
936	23	eSNEZ	20	34	21		Small, local
937	24	ePNZ eSNZ	03	36 41	05 20	3,620	H=03-29-17.3 5.8S, 146.8E Depth: 113 kms. East New Guinea Region Felt; Mag: 5.6 (USCGS)
938	24	iPNEZ iSNEZ	10	58 59	46 15.5	260	H=10-58-07.3 13.3N, 123.0E Depth: 42 kms. Luzon, Phil. Mag: 5.1 (USCGS)

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						Felt; San Francisco Int. II Naga City; Int. III
939	24	eSNE	12	09	56		Small, local
940	24	ePNEZ eISNEZ	15	22	09 22 28	165	
941	24	eSNEZ	17	34	58		Small, local
942	24	iPNEZ iSNEZ	18	01	05.2 01 25.2	175	
943	24	eIPNEZ iSNEZ	18	08	09 08 29.5	178	
944	24	iPNEZ iSNEZ	18	15	27.5 15 48.0	178	
945	25	iPNEZ iSNEZ	00	09	21.5 09 44.5	201	H=00-08-55.3 13.5N, 120.3E Mindoro, Phil. Is. Mag: 5.1 (USCGS) Felt; Manila Int. II Quezon City Int. I
946	25	iPNEZ iSNEZ	00	16	23 16 44	181	
947	25	eSNEZ	03	24	16		Very small
948	25	eSNEZ	04	11	16		Very small
949	25	eSNEZ	05	09	14		Small, local
950	25	ePNEZ eSNZ	07	30	32 35 04	3,000	H=07-24-49.4 4.5N, 96.7E Northern Sumatra Mag: 5.3 (USCGS)

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
951	25	eSNEZ	08	29	52		Small, local
952	25	ePNEZ eSNEZ	14	18 18	40 53	112	
953	25	eSNEZ	18	37	25		Small, local
954	25	ePNEZ eSNEZ	00	43 43	09.3 20.8	97	
955	26	eSN	02	02	04		Very small
956	26	ePZ eSNZ	07	54 57	18 24	1,940	H=07-50-46.1 6.5N, 133.8E Depth: 28 kms. West Caroline Is. Mag: 4.9(USCGS)
957	26	iPZ eISNZ	08	27 27	23.3 31.6	70	
958	26	iPNZ iSNZ	11	32 33	51.5 40	430	H=11-31-42.9 10.6N, 122.6E Depth: 42 kms. Pamay, Phil. Is. Mag: 4.5(USCGS)
959	26	ePNZ	14	31	39		Small, local
960	26	iPZ iSN	15	52 53	45.5 00.0	125	
961	26	iPNZ	16	35	30.6		Small, local
962	26	ePN	16	47	51		Very small
963	27	iPZ iSNZ	00	04 04	03 23.2	176	

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
964	27	eXZ eXNZ	02	22 27	24 48		H=02-15-46.3 42.4N, 142.9E Depth: 32 kms. Hokkaido, Japan Region Felt: Northern Japan Mag: 4.9(USCGS)
965	27	iPEZ iSNEZ	03	37 38	43.5 03.3	173	
966	27	ePNEZ	05	17	16		Very small
967	27	iPZ	07	50	48.3		Very small
968	27	ePNEZ	07	57	45		H=07-54-41.1 4.4N, 126.7E Depth: N Talaud Islands Mag: 5.2(USCGS) Teleseismic
969	27	iPNEZ iSNEZ	09	52 52	12.3 43.7	277	
970	27	iPZ iSNE	18	49 50	55.2 14.2	165	
971	28	eSNEZ	04	33	55		Small, local
972	28	ePNEZ	12	09	57.3		Small, local
973	28	iPNEZ iSNEZ	14	23 25	32.2 26.0	1,015	H=14-22-15.0 6.7N, 126.6E Depth: 114 kms. Mindanao, Phil. Is. Mag: 5.2(USCGS)
974	28	iPNE	17	21	32.8		Very small

NO.	DATE	PHASE	GREENWICH TIME			DISTANCE KMS.	REMARKS
			h	m	s		
	1969 JUNE						
975	28	ePNE	18	03	56		Very small
976	28	ePNEZ	20	19	00		Very small
977	29	ePNZ eSNZ	10	45 55	39 11	8,640	H=10-34-06.5 30.5S, 178.2W Depth: 43 kms. Kermadec Islands Region Mag: 5.6 (USCGS), 53/4-6 (BRK)
978	29	ePNEZ eSNEZ	14	22 22	23 42	165	
979	29	iPNEZ iSNEZ	15	07 08	50. ^h 06.0	135	
980	29	iPNZ iSNZ	17	22 32	00 24	9,620	H=17-09-13.9 62.8S, 166.3E Balleny Islands Reg. Mag: 5.5 (USCGS) Depth: Normal
981	29	eSNE	18	58	57		Small, local
982	29	eiPNEZ iSNEZ	22	19 20	42 11.6	261	
983	30	iPNEZ eiSNEZ	11	26 26	08 24	138	
984	30	eSNEZ	11	51	46		Small, local
985	30	eSNE	13	38	35		Very small
986	30	iPNEZ	18	27	01		Teleseismic H=18-21-36.5 9.3S, 120.1E Depth: 32 kms. Sumba Is. Region Mag: 5.2
987	30	eiPNEZ iSNEZ	22	58 58	12 28.5	143	

11 MAY 1970

Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 Quezon City

INSTRUMENTS

No. 240
 $\phi = 14^{\circ}40'$
 $\lambda = 121^{\circ}05'$

JULY 1969

No.	SEISMOMETER	COMPONENTS	PERIOD (Galvo)	PERIOD (Seismo)	MAGNIFICATION	REMARKS
1	HOSAKA Electro- Magnetic	N - S E - W VERTICAL	1/13sec 1/13sec 1/13sec	5 secs 5 secs 5 secs	1,000 1,000 1,000	Smoke paper type
1	ISHIMOTO	N - S E - W VERTICAL		0.1 0.1 0.1	174 174 179	Smoke paper type
1	SPRENGNETHER	N - S	7.2	3.5	3,000	Visual
STANDARD SEISMOMETER						
1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,000	
1	BENIOFF	VERTICAL	0.75	1.0	12,000	
1	SPRENGNETHER	N - S	100	15	1,500	
1	SPRENGNETHER	E - W	100	15	1,500	
1	SPRENGNETHER	VERTICAL	100	15	1,500	

1	...	...	...	...
2	...	...	...	...
3	...	...	...	...

SYMBOLS

- Z_s = WWSS Short Period Vertical Component
- N_s = WWSS Short Period N-S Component
- E_s = WWSS Short Period E-W Component
- Z_l = WWSS Long Period Vertical Component
- N_l = WWSS Long Period N-S Component
- E_l = WWSS Long Period E-W Component
- N_R = Sprengnether N-S Component
- Z_h = Hosaka Vertical Component
- N_h = Hosaka N-S Component
- E_h = Hosaka E-W Component
- M_b = Body Wave magnitude as calculated from Quezon City Gutenberg and Richter

$$M_b = \log \left(\frac{A}{T_s} \right) + Q$$

where: A = P wave amplitude in microns
 T = Period in seconds
 Q = Depth-distance factor

100
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1960

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No.	Date	Phase	Comp.	Time (GMT)			Distance (kms)	T(sec)	A(mm)	Remarks
				h	m	s				
	Jul 1969									
988	1	eS	NEZ	05	43	23			Small, local	
989	1	eS	NEZ	07	06	48			Very small	
990	1	eP eiS	NE NE	08 08	19 19	37 51.5	125			
991	1	iP iS	NEZ NEZ	13 13	10 10	11.5 38.0	233			
992	1	iP iS	Z _s N _s E _s Z _s	20 20	23 24	57.4 31.1	297	0.6	2.3	
993	1	eP	Z _s	20	48	45			Very small	
994	2	eS	N _s E _s	04	32	08			Very small	
995	2								Int. II Quake felt in Romblon at 0901Z, not recorded	
996	2	eP eS	Z _s N _s E _s Z _s	10 10	04 08	51 43	2,080			
997	2	eS	N _s E _s	21	33	33			Very small	
998	3	eP eS	Z _s N _s Z _s	06 06	37 39	07 07	1,062		H=06-34-46.0 Depth 97 kms. 7.1N, 126.7 E, Mindanao, Phils. Mag:5.0(USCGS)	
999	3	eS	N _s E _s Z _s	09	38	01			Very small	
1000	3	eP	Z _s	11	08	57			Small, local	
1001	3	eP eX	Z _s N _s	14 14	10 13	58 54		0.8	6.0 H=14-06-33.6 Depth 193 kms. 4.4S, 128.4 E Banda Sea Mag: 5.1 (USCGS)	
1002	3	iP iS	Z _s N _s E _s Z _s	14 14	48 49	55 23.5	250			
1003	3	eP eS	Z _s N _s E _s Z _s	15 15	11 11	17 24	58			
1004	3	eS	N _s E _s Z _s	17	39	11			Small, local	

No.	DATE	PHASE	COMP.	TIME (GMT)			DISTANCE (kms)	T (Sec)	A (mm)	Remarks
				h	m	s				
1005	3	iP	Z _S	20	10	38	246	0.8	1.5	
		ciS	N _S E _S Z _S	20	11	06				
1006	3	iP	Z _S	20	40	13	255			
		iS	N _S E _S Z _S	20	40	42				
1007	3	cS	N _S E _S	23	14	21				Very small
1008	4	iP	Z _S	04	44	53	265	0.8	4.0	
		iS	N _S E _S Z _S	04	45	23				
1009	4	iP	Z _S	22	22	17.8	158	0.5	4.2	
		iS	N _S E _S Z _S	22	22	36.0				
1010	4	cS	N _S	22	55	06				Very small
1011	5	cP	Z _S	00	09	58	53			
		cS	N _S	00	10	04.5				
1012	5	iP	Z _S	01	48	46	2,510	1.0	12.0	H=01-44-01.1 Depth -N West New Guinea Region 3.8s, 131.5E Mag: 5.5 (USCGS)
		iS	N _S	01	52	48				
1013	5	cP	Z ₁	11	18	12	4,000			H=11-12-43.6 Depth 57kms 18.6N, 147.0E Mariana Is., Region Mag: 5.0 (USCGS)
		cS	N ₁	11	23	48				
1014	5	iP	Z _S	14	43	09	204			
		iS	N _S E _S Z _S	14	43	32.3				
1015	5	iP	Z _S	21	01	06.2	152			
		iS	N _S E _S Z _S	21	01	23.7				
1016	6	cX	N _S Z _S	11	03	50				Small, local
1017	6	iS	N _S E _S Z _S	13	03	50				Small, local
1018	6	iP	Z _S	13	49	47.3	197			
		iS	N _S E _S Z _S	13	50	09.8				
1019	6	cX	N _S Z _S	15	02	28				Teleseismic

No.	DATE	PHASE	COMP.	TIME (GMT)			DISTANCE kms	T(sec)	A(mm)	Remarks
				h	m	s				
1020	7	iP	Z ₁	04	48	44	3,140	0.7	2.2	H=04-43-15.4 Depth-38kms 16.5N, 147.3E Mariana Is., Region Mag: 5.7(USCGS), 5½(BRK) 5.6(MAN)
		eiS	N ₁ E ₁ Z ₁	04	53	32				
1021	7	eiS	N _S E _S Z _S	15	46	11		0.8	3.2	Small, local
1022	8	eS	E _S Z _S	02	02	09				Small, local
1023	8	iP	Z _S	04	10	05	1,330			H=04-06-39.7 Depth-16kms 2.1N, 126.6E Molucca Passage Mag: 5.5 (USCGS)
		eiS	N _S E _S Z _S	04	12	34				
1024	8	eX	N _S Z _S	07	32	48				
1025	8	eS	N _S E _S Z _S	23	17	48				Small, local
1026	9	iS	N _S E _S Z _S	14	14	06				Small, local
1027	9	iS	N _S E _S Z _S	18	19	56		0.6	1.8	Small, local
1028	9	eiP	Z _S	22	13	27	151	0.8	2.3	
		iS	N _S E _S Z _S	22	13	44.4				
1029	9	eP	N _S E _S Z _S	22	57	27		1.0	2.2	
1030	10	iP	Z _S	01	36	33	146	0.5	2.0	
		iS	N _S E _S Z _S	01	36	49.8				
1031	10	eS	N _S E _S	02	00	34				Small, local
1032	10	eS	N _S	07	52	04				Very small
1033	10	eS	N _S E _S	08	07	20				Very small
1034	10	iP	Z _S	23	49	36	183	0.7	2.0	
		iS	N _S E _S Z _S	23	49	57				
1035	11	eS	N _S E _S Z _S	00	08	12				Small, local
1036	11	eiP	Z _S	00	09	20	192	0.6	2.4	
		iS	N _S E _S Z _S	00	09	42				

No.	DATE	PHASE	COMP.	TIME(GMT)			DISTANCE kms	T(sec)	A(mm)	Remarks
				h	m	s				
1037	11	eS	N _s E _s	09	51	42				Very small
1038	11	iS	N _s E _s Z _s	15	18	50		0.7	2.4	Small, local
1039	11	iS	N _s E _s Z _s	16	21	58		0.8	2.0	Small, local
1040	11	eiP	Z _s	17	35	32	143	0.5	2.2	
		iS	N _s E _s Z _s		35	48.5				
1041	12	iS	N _s E _s Z _s	01	57	55				Small, local
1042	12	eS	N _s E _s Z _s	03	29	02				Small, local
1043	12	eS	N _s E _s Z _s	05	14	16				Small, local H=05-13-12.3 Depth 142 kms. 6.2N, 126.1E Mindanao, Phils.
1044	12	iP	Z _s	05	26	26	175			Felt:Calapan-II
		iS	N _s E _s Z _s		26	46				
1045	12	iP	Z _s	05	32	38.6	239			
		iS	N _s E _s Z _s		33	05.8				
1046	12	iP	Z ₁	13	08	29	7,200	1.0	3.0	H=13-00-36.9 Depth 12 kms. 46.5N, 153.3E Kurile Islands Mag: 5.3(USCGS)
		eiS	N ₁ Z ₁		16	55				
1047	12	iP	Z ₁	19	23	13	3,380	1.0	2.5	H=19-16-31.6 Depth -Normal 39.7N, 143.5E Off east coast of Honshu, Jap. Mag: 5.6(MS)
		iS	N ₁ Z ₁		28	15				
1048	12	eS	N _s E _s Z _s	23	30	12				Small, local

No.	DATE	PHASE	COMP.	TIME (GMT)			DISTANCE kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1049	13	iP	Z _s	07	40	32.5	322			
		iS	N _s E _s Z _s	41	09.0					
1050	13	eiP	Z _s	16	03	04	153			
		iS	N _s E _s Z _s	03	21.6					
1051	13	eS	N _s E _s Z _s	16	18	37				Very small
1052	13	eiS	Z _s	16	50	26				Very small
1053	13	iP	Z _s	22	08	05	181	1.0	5.0	
		iS	N _s E _s Z _s	08	25.8					
1054	14	eS	N _s E _s Z _s	04	47	14				Very small
1055	14	eS	N _s E _s Z _s	09	35	44				Small, local
1056	15	eS	N _s E _s Z _s	23	54	14				Small, local
1057	16	iP	Z _s	04	50	18	1,143			H=04-47-37.2 Depth-75kms. Mindanao, Phils. 5.3N, 126.8E Mag: 5.4(USCGS)
		iS	N _s E _s Z _s	52	26					
1058	16	eS	N _s E _s Z _s	07	30	44				Small, local
1059	16	iP	Z ₁	08	25	30	6,500			H=08-16-53.3 Depth 69 kms. 32.2N, 159.OE Off east coast Of Kamchatka Mag:5.8(USCGS), 6½(PAS), 5.6-5.7 (BRK)
		iS	N ₁ E ₁ Z ₁	33	21					
1060	16	iP	Z ₁	12	46	45	7,280			H=12-39-26.2 Depth 85 kms. 4.7S, 153.1E New Ireland Reg. Mag:4.6(USCGS)
		eiS	N ₁ Z ₁	55	12					

No.	DATE	PHASE	COMP.	TIME(GMT)			DISTANCE kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1061	16	iP	Z _s	17	27	46	255			Felt:Barapmang & Rabaul, New Britain
		iS	N _s E _s Z _s		28	15				
1062	17	eS	N _s E _s Z _s	00	56	00				Small, local
1063	17	eS	N _s E _s Z _s	07	34	38				Small, local
1064	18	iP	N ₁	05	30	00	2,840			H=05-24-48.0 Depth-Normal 38.3N, 119.4E Northeastern China Mag:6.2(USCGS), 7(PAS), 7.0(BRK), 7.3(MS). Repor- ted heavy damage in China Felt:Oita,Kyusyu
		iS	N ₁		34	26				
1065	18	eS	N _s E _s Z _s	11	41	10				Small, local
1066	18	eX	N _s Z _s	13	43	12				Teleseismic H=13-33-48.4 38.1N,119.4E Northeastern China Mag: 5.0(USCGS) Depth -32kms.
1067	18	iP	Z _s	18	44	11	248			Felt: Aurora-II
		iS	N _s E _s Z _s		44	38.2				
1068	18	eiP	Z _s	21	53	32.5	228			
		eS	N _s E _s Z _s		53	58.5				
1069	19	eiP	Z _s	01	34	06	150			
		iS	N _s E _s Z _s		34	23.3				
1070	19	eX	N E Z	01	38	38				H=01-33-44.0 Depth-142kms. 6.4S, 130.1E Banda Sea Mag: 5.3(USCGS)
		eX	N E Z	01	42	36				

No.	DATE	PHASE	COMP.	TIME(GMT)			DISTANCE kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1071	19	eiP	Z _s	02	50	36.3	192			
		eiS	N _s E _s Z _s		50	58.3				
1072	19	iP	Z _s	03	32	33.7	163			
		eiS	N _s E _s Z _s		32	52.4				
1073	19	iP	Z ₁	05	15	08	3,510		H=05-11-43.4 Depth - 659kms. 21.5S, 179.5W Fiji Is. Region Mag: 5.0(USCGS)	
		iS	N ₁ Z ₁		19	48				
1074	19	iP	Z _s	05	45	57	170			
		iS	N _s E _s Z _s		46	16.5				
1075	19	eX	N _s Z _s	06	12	11			Teleseismic	
1076	19	iP	Z _s	07	59	30	123			
		iS	N _s E _s Z _s		59	44.2				
1077	19	eP	Z _s	10	39	22	165			
		eiS	N _s E _s Z _s		39	41				
1078	19	eiP	Z _s	11	16	28.5	148			
		eiS	N _s E _s Z _s		16	45.6				
1079	19	iP	Z _s	11	25	03	190		Felt: Manila-I	
		iS	N _s E _s Z _s		25	24.8				
1080	19	iP	Z _s	11	29	56	172			
		iS	N _s E _s Z _s		30	15.7				
1081	19	eiP	Z _s	11	40	40	123			
		iS	N _s E _s Z _s		40	54.2				
1082	19	eiP	Z _s	12	22	05	138			
		iS	N _s E _s Z _s		22	21				
1083	19	eS	N _s E _s Z _s	12	30	03			Very small	

No.	DATE	PHASE	COMP.	TIME(GMT)			DISTANCE kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1084	19	eP	Z _s	12	34	48.8	125			
		eiS	N _s E _s Z _s	35	03.2					
1085	19	iP	Z _s	12	53	40.5	118			
		iS	N _s E _s Z _s	53	54.2					
1086	19	iP	Z _s	15	08	38.4	203			
		iS	N _s E _s Z _s	09	01.6					
1087	19	eS	N _s E _s Z _s	15	38	27			Small, local	
1088	19	eP	Z _s	15	39	54.5	125			
		eiS	N _s E _s Z _s	40	09.0					
1089	19	iP	Z _s	16	48	57	188			
		iS	N _s E _s Z _s	49	18.5					
1090	19	eS	N _s E _s Z _s	17	19	08			Very small	
1091	19	iP	Z _s	20	15	54	168			
		iS	N _s E _s Z _s	16	13.3					
1092	19	eiP	Z _s	21	20	03.8	130			
		iS	N _s E _s Z _s	21	18.8					
1093	19	eiP	Z _s	22	15	08	138			
		iS	N _s E _s Z _s	15	24					
1094	19	eiP	Z _s	22	17	04.5	148			
		iS	N _s E _s Z _s	17	21.5					
1095	20	eX	N ₁ Z ₁	20	19	52			Teloseismic H=20-04-46.7 Depth-196kms. 15.6S, 167.8E New Hebrides Is. Mag: 5.3(USCGS)	
1096	21	eiP	N _s E _s	08	27	13.5	172			
		eiS	NsEs	27	33.2					

No.	DATE	PHASE	COMP.	TIME(GMT)			DISTANCE kms.	T(sec)	A(mm)	Remarks	
				h	m	s					
1097	21	iS	N _S E _S	10	33	44				Small, local	
1098	21	iP	N _S E _S	11	58	20.5	157				
		iS	N _S E _S		58	38.6					
1099	21	eiP	N _S E _S	12	16	48.8	145				
		eiS	N _S E _S		17	05.5					
1100	21	eS	N _S E _S	21	10	35				Small, local	
1101	21	iP	N _S E _S	22	09	47.5	1,290				H=22-06-56.9
		iS	N _S E _S		12	12.5					Depth-220kms. 2.9N, 124.7E Celebes Sea Mag:5.6(USCGS)
1102	22	eS	N _S	08	53	20				Small, local	
1103	22	eS	N _S E _S	15	27	42				Small, local	
1104	22	iP	N _S E _S	15	50	23.5	150				
		iS	N _S E _S		50	40.7					
1105	22	eS	N _S	17	23	40				Small, local	
1106	23	eX	N _S E _S	13	20	37				H=13-14-35.1 Depth-53kms. 37.3N, 141.5E Near east coast of Honshu, Jap. Mag:5.2(USCGS)	
1107	23	eX	N _S E _S	13	28	52					
1108	24	eS	N _S E _S	02	03	00				Small, local	
1109	24	eX	N _S	04	15	48				Teleseismic	
1110	24	eP	N _S	05	07	08	1,071				H=05-03-26.7
		eS	N _S		09	08					Depth-41kms. 1.6N, 126.5E Molucca Passage Mag:5.4(USCGS)
1111	24	eP	N _S	13	08	12				Teleseismic	

No.	DATE	PHASE	COMP.	TIME(GMT)			DISTANCE kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1112	24	eX	N _S	15	21	06				H=15-11-01.1 Depth-53kms. 1.8S, 128.5E Halmahera Mag:5.1(USCGS)
1113	24	eS	N _S E _S	23	28	49				Small, local
1114	25	iP	Z _S	12	59	15	133			
		iS	N _S Z _S		59	30.4				
1115	25	iP	Z _S	13	37	24	1,740			
		iS	N _S Z _S		40	20				
1116	25	eiP	Z _S	21	42	50	220			
		iS	N _S Z _S		43	15				
1117	25	iP	Z _S	22	52	22	1,265			
		iS	N _S Z _S		54	44				
	26 to 30									No record run made, vaultroom under partial re- novation, building extension being constructed. Read- ings from Spreng- nether records.
1118	26	iP	N _R	05	23	18	175			
		iS	N _R		23	38				
1119	29	eP	N _R	11	30	57				
1120	29	eiP	N _R	11	54	51	175			
		iS	N _R		55	11				
1121	30	iP	N _R	22	06	26	175			
		iS	N _R		06	46				

DEP.

DEPARTMENT OF
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35



11 MAY 1970

Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 Quezon City

INSTRUMENTS

No. 241

August 1969

$\phi = 14^{\circ}40'$

$\lambda = 121^{\circ}05'$

No.	SEISMOMETER	COMPONENTS	PERIOD (Galvo)	PERIOD (Seismo)	MAGNIFICATION	REMARKS
1	HOSAKA Electro- Magnetic	N - S	1/13sec	5 secs	1,000	Smoke paper type
		E - W	1/13sec	5 secs	1,000	
		VERTICAL	1/13sec	5 secs	1,000	
1	ISHIMOTO	N - S		0.1	174	Smoke paper type
		E - W		0.1	174	
		VERTICAL		0.1	179	
1	SPRENGNETHER	N - S	7.2	3.5	3,000	Visual

STANDARD SEISMOMETER S

1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,000	
1	BENIOFF	VERTICAL	0.75	1.0	12,000	
1	SPRENGNETHER	N - S	100	15	1,500	
1	SPRENGNETHER	E - W	100	15	1,500	
1	SPRENGNETHER	VERTICAL	100	15	1,500	

SYMBOLS

- Z_s = WWSS Short Period Vertical Component
- N_s = WWSS Short Period N-S Component
- E_s = WWSS Short Period E-W Component
- Z_l = WWSS Long Period Vertical Component
- N_l = WWSS Long Period N-S Component
- E_l = WWSS Long Period E-W Component
- N_R = Sprengnether N-S Component
- Z_h = Hosaka Vertical Component
- N_h = Hosaka N-S Component
- E_h = Hosaka E-W Component
- M_b = Body Wave magnitude as calculated from Quezon City
Gutenberg and Richter

$$M_b = \text{Log} \left(\frac{A}{T^S} \right) + Q$$

where: A = P wave amplitude in microns
 T = Period in seconds
 Q = Depth-distance factor

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
	Aug. 1969									
1122	1	iP iS	N ₁ Z ₁ N ₁ Z ₁	23	51 57	20 44	4,940		H= 23-43-44.9 Depth 38kms. 45.6°N, 150.9°E Kurile Islands Mag: 5.6(USCGS), 5.8(PAS) 5 ³ / ₄ -6(GOL)	
1123	2	iS	N _S E _S Z _S	00	23	01			H=00-36-55.5 Depth 223kms. 6.3N, 126.7E Mindanao, Phils. Mag: 5.1 (USCGS) No record run made from Aug. 2-5. Readings taken from Sprengnether	
	3								No Quake recorded	
1124	4	iP iS	N ₁ N ₁	17	23 26	26 42	1,960		H=17-19-19.6 Depth 521kms. 5.7S, 125.3E Banda Sea, Mag:6.2(USCGS)	
1125	5	iP iS	N ₁ N ₁	02	17 20	41 40	1,780		H=02-13-09.6 Depth 34 kms. 1.3N, 126.2E Molucca Passage Mag: 6.1(USCGS), 7.2(PAS) 6 ¹ / ₂ (BRK) Felt at Manado, Celebes	
1126	5	eP	N _S	16	39	42			Teleseismic	
1127	6	iP eS	N _S E _S Z _S N _S E _S Z _S	13	50 50	16 58	372			
1128	7	eP	N _S E _S Z _S	00	17	32				
1129	8								H=05-02-01.2 Depth 52kms. 7.2N, 125.7E Mindanao, Phils Mag: 5.2(USCGS) Felt: Davao-Int. III Malaybalay-II	

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks	
				h	m	s					
1130	8	iP	Z ₁	06	39	28	1,940			H=06-30-57.1 Depth 198kms. 36.4N, 70.9E Hindukush Region Mag: 5.8(USCGS)	
		iS	N ₁ E ₁		42	34					
1131	8	iP	Z _s	20	49	05	300				
		iS	N ₁ E ₁		49	39					
1132	8	iP	Z _s	20	52	55	318				
		eS	N ₁ E ₁		53	31					
1133	9	eP	Z _s	09	18	52	228				
		eS	N _s E _s		19	18					
1134	9	iP	Z	15	17	15					Small
1135	9	iP	Z _s	16	51	39.2	146				
		iS	N _s E _s		51	56.0					
1136	9	iP	Z _s	18	06	07				Small	
1137	9	i(P)	N _s E _s	23	12	16.3		1.0	2.6	Small	
1138	10	iP	Z _s	18	07	26	194				
		iS	N _s E _s		07	48.2					
1139	10	i(P)	N _s E _s Z _s	22	26	27.2				Small	
1140	10	i(P)	N _s E _s Z _s	23	27	16.8					
1141	11	iP	N _s E _s Z _s	02	33	40				Small	
1142	11	iP	N _s E _s Z _s	02	45	48					
1143	11	iP	N _s E _s Z _s	05	39	29.5					
1144	11	iP	N _s E _s Z _s	11	01	54.5				Small	
1145	11	iP	N _s E _s Z _s	11	08	24				Small	
1146	11	iP	N _s E _s Z _s	11	39	47				Small	
1147	11	iP	N _s E _s Z _s	11	58	08				Small	

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1148	11	iP	N _s E _s Z _s	13	09	09				Small
1149	11	iP iS	Z ₁ N ₁ E ₁ Z ₁	21	33	45.5 39 34.5	4,400			H=21-27-39.4 43.5N, 147.4E Kurile Islands Depth 28 kms. Mag:7.1(USCGS), 7.8(PAS) 7.6(BRK) Felt at Nemuro. This event, which was preceded by at least 5 teleseismic foreshocks in 25 hours, was the initial shock of clustered quakes of successively larger magnitude which occurred within an interval of about 63 secs Damage on Shikotan, Southern Kurile Islands Felt widely on Hokkaido and on Honsin at least as far as Tokyo, 1100km to the Southwest. Tsunami heights (crest to trough in meters) Nemuro-2.60, Urakawa-1.32 Hachinohe-1.10, Midway-0.49, Kahului, Hawaii-0.43 Wake Island-0.24, not more than 1 meter in Kurils
1150	11	iP	Z	23	01	10.6				
1151	11	iP •PcP eS	Z ₁ N ₁ E ₁ Z ₁	23 23 24	56 59 00	15.5 20 56	2,960			H=23-52-56.9 Depth 34kms. 1.7N, 126.5E Molucca Passage Felt at Manado, Celebes Mag:6.1(USCGS)
1152	12	iP	N ₁ E ₁ Z ₁	02	25	17				H=02-21-53.0 Depth 67kms. 1.7N, 126.5E Molucca Passage Mag: 5.0(USCGS)
1153	12	iP	N EZ	05	00	46				

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1154	12	iP	Z ₁	05	10	39	4,780			H=05-03-26.9 Depth - Normal 43.6N, 148.0E Kurile Islands Reg. Mag: 6.0(USCGS)
		iS	N ₁ E ₁ Z ₁		16	45				
1155	12	iP	N _s E _s Z _s	06	00	50				
1156	12	iP	N _s E _s Z _s	08	29	44				
1157	12	iP	Z _s	11	28	37.5	1,003			
		eS	N _s E _s Z _s		30	30.0				
1158	12	iP	Z _s	12	24	42	838			
		eS	N _s E _s Z _s		26	16				
1159	12	iP	Z _s	16	24	55	188			
		iS	N _s E _s Z _s		25	16.5				
1160	12	eS	N _s E _s Z _s	18	35	24				Small, local
1161	12	eS	N _s E _s Z _s	20	04	32				Small, local
1162	12	iP	Z _s	20	14	40	138			
		iS	N _s E _s Z _s		14	56				
1163	12	eP	N ₁ E ₁ Z ₁	21	23	30				Teleseismic H=21-16-11.3 Depth-Normal 42.9N, 146.5E Off coast of Hokkaido, Japan, Mag:5.4(USCGS)
1164	12	eX	N E Z	23	13	07				
1165	13	eP	E _s	02	43	15				
1166	13	iP	N _s E _s Z _s	03	36	20				Small
1167	13	iP	N _s E _s Z _s	06	14	23				Small
1168	13	i(P)	N _s E _s	06	40	26				Small
1169	13	iP	Z _s	07	01	02	228			
		eS	N _s E _s Z _s		01	28				
1170	13	iP	Z _s	08	38	42	408	1.0	5.0	
		eS	N _s E _s Z _s		39	28				

No.	Date	Phase	Comp.	Time(GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1171	13	eS	N _S E _S Z _S	10	43	55			Small, local	
1172	13	eS	N _S E _S Z _S	11	44	56			Small, local	
1173	13	eS	N _S E _S Z _S	14	48	33			Small, local	
1174	13	eS	N _S E _S Z _S	15	54	30			Very small	
1175	13	eS	N _S E _S	16	46	24			Very small	
1176	13	eS	N _S E _S	19	04	39			Very small	
1177	13	eS	N _S E _S	21	48	52			Very small	
1178	13	iP	Z _S	23	04	21	4,230		H=22-57-07.4 Depth-Normal 44.ON, 148.1E Kurile Islands Mag: 5.6(USCGS), 6.2(PAS) 5.7(BRK), 6-6½(PAL)	
		esP	Z _S		05	05				
		iS	N E Z		10	09				
1179	14	iP	Z _S	00	32	52.5	3,240		H=00-29-32.3 Depth-Normal 1.6N, 126.3E Molucca Passage Mag:5.4(USCGS)	
		ipP	Z _S		33	14				
		esP	Z _S		33	54				
		ePcP	Z _S		35	54.5				
		eS	E _S		37	42				
1180	14	iP	Z _S	14	26	07	4,280		H=14-19-01.6 Depth-Normal 43.1N, 147.5E Kurile Islands Mag:6.1(USCGS), 6.5(PAS) 6.4(BRK), 5½(PAL)	
		epP	Z ₁		26	32				
		isP	Z ₁		26	51				
		esP	N ₁ Z ₁		28	06				
		iS	N ₁		31	52				
1181	15	iP	Z _S Z ₁	03	43	51	1,640		H=03-37-52.8 Depth 22kms. 3.5S, 144.4E Near North coast of New Guinea, Mag:5.4(USCGS)	
		iS	N _S E _S Z _S		46	40				
1182	15	iP	Z ₁	08	46	22	2,280		H=08-41-54.9 Depth - 319kms. 21.6N, 143.0E Mariana Islands Reg. Mag: 6.1(USCGS)	
		iS	N _S E _S		50	07.5				

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1183	15	eP	Z ₁	10	09	25	4,200			H=10-02-17.9 Depth-Normal 43.1N, 148.3E Kurile Islands Reg. Mag:4.7(USCGS)
		eS	N ₁ Z ₁		15	11				
1184	15	iP	Z _s	14	56	29	152			
		iS	N _s E _s Z _s		56	46.5				
1185	15	iP	Z _s	21	48	50.5	537			
		eS	N _s E _s		49	51.0				
1186	15	iP	N _s E _s Z _s	22	50	44.5				Small
1187	16	iP	Z _s	00	35	31	604			
		eS	N _s E _s Z _s		36	39				
1188	16	iP	Z _s	11	28	18	134			
		iS	N _s E _s Z _s		28	33.5				
1189	16	iP	N _s E _s Z _s	15	22	34.5	5,700			H=15-15-32.7 Depth 60kms. 43.3N, 147.6E Kurile Islands Mag:5.7(USCGS), 4.9-5.1(BRK) 5 $\frac{1}{2}$ -5 $\frac{3}{4}$ (PAL)
		ePcP	N _r		23	46				
		eS	N _r		29	43				
		esS	N _r		30	34				
1190	16	iP	Z _s	22	05	12.5	22			
		iS	N _s E _s Z _s		05	15.5				
1191	17	iP	Z _s	12	01	20.5	3,460			H=11-54-54.9 Depth-130kms. 42.7N, 141.4E Hokkaido, Japan Reg. Felt on Hokkaido Mag:5.6(USCGS)
		iS	N _s E _s Z _s		06	31.0				
1192	17	iP	Z _s	13	11	35	175			
		iS	N _s E _s Z _s		11	55				
1193	17	iP	N _s E _s	16	50	04.5				Small

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A (mm)	Remarks
				h	m	s				
1194	17	eP	Z ₁	20	31	25	13,500		H=20-13-08.2 Depth-Normal 25.3N, 109.2W Gulf of California Felt at Los Mochis & La Paz, Mag:5.7(USCGS)	
		eS	N ₁ Z ₁		44	09				
1195	18	iP	N _s E _s Z _s	05	33	10			Small	
1196	18	eS	N _s E _s	05	45	12			Very small	
1197	18	iP	N _s E _s Z _s	08	55	21				
1198	18	iP	Z _s	09	05	16	2,300			
		eS	N ₁		09	00				
1199	18	i(P)	N _s Z _s	13	43	20.5			Small	
1200	18	eP	N _s Z _s	19	31	57	85			
		eS	N _s		32	07				
1201	18	i(P)	N _s	21	16	10.5				
1202	19	eP	Z ₁	01	44	42	5,000		H=01-39-08.3 Depth-50kms. 6.1S, 105.3E Sunda Strait Mag:5.1(USCGS)	
		esP	Z ₁		45	22				
		eScP	Z ₁		49	56				
		iS	N _r		51	04				
1203	19	iP	N _r	01	50	46				
1204	19	eP	Z ₁	02	30	47	973			
		eS	Z		32	36				
1205	19	eP	Z ₁	08	56	14	4,960		H=08-49-54.8 Depth-39kms. 43.8N, 148.2E Kurile Islands Reg. Mag:5.7(USCGS), 6.1(BRK) 6½(PAL)	
		eS	Z ₁	09	02	37				
1206	19	iP	N _s E _s Z _s	19	12	13.8	131			
		iS	N _s E _s Z _s		12	29.0				
1207	20	eP	Z ₁	07	58	03	4,780		H=07-51-30.2 Depth-39kms. Kurile Islands Reg. 43.8N, 147.1E Mag:4.8(USCGS)	
		eS	Z ₁	08	05	16				

No.	Date	Phase	Comp.	Time(GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1208	20	eP	N _r	11	28	15	470			
		eS	N _r		29	08				
1209	20	i(P)	N _s E _s	16	42	10			Small	
1210	20	i(P)	NsEs	16	59	17.5			Small	
1211	20	iP	Z _s	17	06	28.5	165			
		iS	NsEsZs		06	47.5				
1212	20	iP	Zs	17	29	02.8	7,000			
		iS	Z ₁		37	16.0				
1213	21	iP	Z ₁	13	31	10	7,440		H=13-24-01.9 Depth 44 kms. 43.6N, 148.1E Kurile Islands Reg. Mag:5.5(USCGS)	
		eS	Z ₁		39	46				
1214	21	i(P)	Ns	17	03	30.5			Small	
1215	21	i(P)	Ns	20	45	37			Small	
1216	21	iP	NsEsZs	22	14	46.3	149			
		iS	Ns		15	03.5				
1217	22	iP	NsEs	03	11	15	175			
		iS	NsZs		11	35				
1218	22	eP	NsEs	03	46	12	24			
		eiS	NsEs		46	15.2				
1219	22	eX	N Z	05	03	10			Teleseismic	
1220	22	iP	Z _s	05	53	37.5	175			
		iS	N _s E _s Z _s		53	57.6				
1221	22	iP	N ₁ E ₁	16	52	45	8,380			
		eS	N ₁ E ₁		02	04				
1222	22	iP	NsEs	20	15	40.6	233			
		iS	NsEs		16	07.2				
1223	23	eP	Z	06	45	53			Teleseismic H=06-39-24.5 Depth 33kms. 39.8N, 144.2E Off East coast of Honshu, Japan Mag: 5.2(USCGS)	

No.	Date	Phase	Comp.	Time(GMT)			Distance kms	T(sec)	A(mm)	Remarks
				h	m	s				
1224	23	eP eS	Zs NsEsZs	07	42	23 27	30			
1225	23	eP eS	NsEs NsEs	16	13	06 26	175			
1226	23	eiP eS	NsEs NsEs	17	36	26 50	210			
1227	24	iP iS	Zs Zs	10	03	11 27	138			
1228	24	eP eS	Ns Ns	04	24	08 15	60			
1229	24	eP	Ns	10	51	34				
1230	24	eP eS	Ns Ns	16	20	11 28	148			
1231	24	iP eS	Z ₁ Z ₁	22	09	34 06	6,200		H=22-03-03.8 Depth 32kms. 39.8N, 144.3E Off east coast of Honshu, Japan Mag:5.4(USCGS)	
1232	25	i(P)	NsEs	06	04	53.5			Small	
1233	25	iP iS	NsEsZs N _h E _h Z _h	13	13	20.8 43.0	194		H=13-12-55.4 Depth 102kms. 16.0N, 121.2E Luzon, Phils. Mag:4.3(USCGS)	
1234	25	eP eS	Z ₁ N ₁ Z ₁	17	04	10 16	1,125			
1235	25	i(S)	NsEs	19	12	20.5			Small	
1236	25	iP iS	Zs NsEsZs	20	43	06.8 22.0	131			
1237	25	iP eS	Zs Z ₁	21	35	47.5 36.0	2,240		H=21-32-13.5 Depth -Normal 0.4N, 126.0E Molucca Passage Mag:5.1(USCGS)	
1238	26	eP	NsEsZs	14	51	35				
1239	26	iP iS	NsEsZs N ₁ Z ₁	17	05	02 54	4,300		H=16-58-02.3 Depth-59kms. 5.8S, 151.2E New Britain Reg. Mag: 5.6(USCGS) Felt at Rabaul & Kilengi.	

No.	Date	Phase	Comp.	Time(GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1240	27	iP iS	Zs NsZs	09	40 41	42.8 13.5	306			
1241	27	iP eS	Zs N ₁ Z ₁	13	28 32	58.5 48.0	2,380	1.0	3.5 H=13-23-12.5 Depth 188kms. 4.3S, 104.6E Southern Sumatra Mag:5.6(USCGS)	
1242	27	iS	NsZs	14	22	21.8			Small	
1243	27	iP iS	Zs NsZs	19	28 33	38.3 02.0	2,840	1.0	4.5 H=19-23-10.6 Depth-20kms. 28.7N, 143.8E Bonin Islands Reg. Mag:5.4(USCGS)	
1244	27	iP iS	Zs NsZs	21	48 48	22 58.5	322			
1245	28	eP eS	Z ₁ N ₁ Z ₁	04	07 18	16 06	10,280		H=03-58-34.8 Depth-20kms. 39.1N, 73.6E Tadzhik-Sinkiang Border Mag:5.1(USCGS)	
1246	28	eP eS	Z ₁ N ₁ Z ₁	14	05 15	48 26	8,780		H=13-54-11.0 Depth-29kms. 31.5N, 177.9W Kermadel Islands Mag:5.3(USCGS), 6(PAS)	
1247	28	eP eS	Z ₁ N ₁ Z ₁	21	42 48	24 05	4,180		H=21-35-23.4 Depth-52kms. 43.5N, 147.7E Kurile Islands Mag:4.9(USCGS)	
1248	29	eiP iS	NsEsZs NsEsZs	07	42 42	51.3 56.5	42			
1249	29	eX	Z	06	09	00				
1250	29	eP	N ₁ Z ₁	09	34	00			Teleseismic	
1251	29	eX	N ₁ Z ₁	18	22	00				
1252	29	eS	NsEsZs	19	07	25			Very small	
1253	30	eP eS	Z ₁ Z ₁	07	08 18	48 48	9,200			

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1254	30	eP iS	Ns Ns	19	34	29 39	85			
1255	31	iP eS	Z ₁ Z ₁	04	11	16 25	3,540		H=04-07-48.2 Depth -19kms 1.1N, 126.0E Molucca Passage Mag:4.9(USCGS)	
1256	31	iP	Zs	11	02	26		1.0	3.5	
1257	31	iP iS	Zs Ns	11	44	04 15	632			H=11-42-42.3 Depth-52kms. 11.8N, 125.9E Samar, Phils. Mag:4.9(USCGS)
1258	31	iP eS	Zs Z ₁	13	10	43.4 08.0	3,880	1.0	4.0	H=13-05-08.6 Depth-64kms. 4.5S, 102.3E Southern Sumatra Mag:5.5(USCGS)

11 MAY 1970

Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 Quezon City

INSTRUMENTS

No. 242

September 1969

$\phi = 14^{\circ}40'$

$\lambda = 121^{\circ}05'$

No.	SEISMOMETER	COMPONENTS	PERIOD (Galvo)	PERIOD (Seismo)	MAGNIFICATION	REMARKS
1	HOSAKA Electro- Magnetic	N - S	1/13 sec	5 secs	1,000	Smoke paper type
		E - W	1/13 sec	5 secs	1,000	
		VERTICAL	1/13 sec	5 secs	1,000	
1	ISHIMOTO	N - S		0.1	174	Smoke paper type
		E - W		0.1	174	
		VERTICAL		0.1	179	
1	SPRENGNETHER	N - S	7.2	3.5	3,000	Visual

STANDARD SEISMOMETERS

1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,000	
1	BENIOFF	VERTICAL	0.75	1.0	12,000	
1	SPRENGNETHER	N - S	100	15	1,500	
1	SPRENGNETHER	E - W	100	15	1,500	
1	SPRENGNETHER	VERTICAL	100	15	1,500	

SYMBOLS

- Z_s = WWSS Short Period Vertical Component
 N_s = WWSS Short Period N-S Component
 E_s = WWSS Short Period E-W Component
 Z_l = WWSS Long Period Vertical Component
 N_l = WWSS Long Period N-S Component
 E_l = WWSS Long Period E-W Component
 N_R = Sprengnether N-S Component
 Z_h = Hosaka Vertical Component
 N_h = Hosaka N-S Component
 E_h = Hosaka E-W Component
 M_b = Body Wave magnitude as calculated from Quezon City
Gutenberg and Richter

$$M_b = \text{Log} \left(\frac{A}{T_s} \right) + Q$$

where: A = P wave amplitude in microns
 T = Period in seconds
 Q = Depth-distance factor

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
	Sept. 1969									
1259	1	iP iS	Zs Ns	01	10 11	11 25	659			
1260	1	iP iS	Zs Ns	02	50 51	39.5 52.5	651			
1261	1	iP iS	Zs Ns	03	27 28	20.5 24.2	565		H=03-26-00.2 Depth-58kms.* 11.9N, 125.6E Samar, Philippines Mag: 5.0(USCGS)	
1262	1	eP eS	Z ₁ Z ₁	08	36 41	32 25	3,260			
1263	1	iP eS	Zs Z ₁	09 10	56 03	56 12	4,780		H=09-49-52.0 Depth-Normal * 43.1N, 147.6E Kurile Islands Mag: 5.3(USCGS)	
1264	1	iP iS	Zs Ns	23	34 34	14 36.5	197			
1265	2	iP iS	Ns NsEs	01	22 22	18.3 39.0	180			
1266	2	iP iS	Ns NsEs	05	26 27	49.5 17.3	244			
1267	2	ePKP eLq eLr	N ₁ Z ₁ N ₁ Z ₁ Z ₁	12	17 41 44	36 41 33	12,240			
1268	2	iP iS	Ns NsEs	14	02 02	41.5 50.0	71			
1269	3	eP eS	Z ₁ N ₁	01	35 38	04 49	2,300		H=01-32-00.8 Depth-58kms.* 4.4N, 128.4E North of Halmahera Mag: 5.2(USCGS)	

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1270	3	iP eS	Zs N ₁	16	25 29	40 56	2,720		H=16-20-21.5 Depth-16kms.* 31.5N, 140.2E South of Honshu, Mag: 5.3*	
1271	3	iP iS	Zs NsEsZs	20	43 44	55 11	138			
1272	3	iP iS	Zs Ns	22	37 38	44 19	308			
1273	4	iP eS	Zs N ₁	03	16 22	40.5 54	4,720		H=03-08-52.0 Depth-Normal 46.6N, 153.5E Kurile Islands Mag: 5.4*	
1274	4	iP	NsZs	16	33	53			H=16-29-00.2 Depth-164kms* 7.0S, 129.2E Banda Sea Mag: 5.3*	
1275	4	iP iS	NsEsZs N _R	18	11 11	14.8 44.5	262		H=18-10-36.0 Depth-53kms* 16.3N, 119.6E Luzon, Phils. Mag: 5.1*	
1276	4	iP eS	Zs N ₁	21	19 25	42.3 23	4,100		H=21-12-39.5 Depth-60kms* 43.8N, 147.4E Kurile Islands Mag: 5.6*	
1277	4	iP iS	Zs Ns	23	30 30	33 50	148			
1278	5	iP iS	N _R N _R	03	20 20	38 50.2	105			
1279	5	iP iS	N ₁ Z ₁ N ₁ Z ₁	11	44 46	14 11	1,045		H=11-42-14.0 Depth-33kms.* 22.7N, 121.7E Taiwan Region Mag: 5.6*	
	6								Instruments out of order	

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1280	7	eP	Z ₁	03	14	08	7,145			H=03-06-02.2 Depth-Normal* 8.9S, 157.7E Solomon Islands Mag: 5.6(USCGS)
		eS	Z ₁		22	40				
1281	7	eP	Z ₁	06	38	47	3,240			H=06-21-05.1 Depth-35kms* 9.0S, 158.0E Dolomon Islands Mag: 5.2*
		eS	Z ₁		43	38				
1282	7	eP	Z ₁	08	48	28	3,050			H=08-40-34.3 Depth-173kms* 6.6S, 155.8E Solomon Islands Felt:Bouganville Mag: 5.3*
		eS	Z ₁		53	08				
1283	7	eP	Z ₁	19	00	24	2,240			
		eS	Z ₁		04	22				
1284	8	eP	Z ₁	12	54	10	5,000			H=12-45-34.6 Depth-47kms.* 5.1S, 153.4E New Ireland Region Felt: Rabaul Mag: 5.2 *
		eS	Z ₁	13	01	10				
1285	9	iP	N _R	05	21	11.5	2,900			H=05-15-37.7 Depth-29kms.* 35.7N, 137.0E Honshu, Japan Mag: 5.5*, 6(PAS) Ten injured, minor property damaged in Gifu prefecture.
		eS	N _R		25	42				
1286	9	iP	NsEsZs	07	38	22.4	300			H=07-37-37.6 Depth-45kms.* 12.7N, 123.0E Luzon, Phils. Mag: 4.8*
		eiS	NsEsZs		38	56.4				
1287	9	eS	NsEs	10	39	39				Small, local
1288	10	eP	Z _h	06	53	19	237			
		eS	E _h		53	46				

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**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1289	10	eP	Z ₁	22	10	00	532			
		eS	N ₁		11	00				
	11									No Quake recorded
1290	12	iP	NsZs	09	07	12	7,000			H=08-57-07.3 Depth-48kms* 51.2N, 179.2W Andreanof Islands, Aleutian Is. Mag: 6.0*, 6.2** 5.9-6.1***, 7(PAL) 6.5****, 6.3ML(CGS) Felt: Adab & Amchitra
		iS	NsZs		15	28				
1291	12	eS	NsEs	20	33	51				Very small
1292	12	eS	NsEs	21	23	23				Very small
1293	13	eP	Z ₁	12	05	52	6,160			H=11-52-15.3 Depth-52kms.* 43.5N, 147.6E Kurile Islands Mag: 5.5*
		eS	Z ₁		13	22				
1294	14	eX	NZ	06	28	09				Teleseismic
1295	14	eP	N ₁ Z ₁	10	04	47	973			H=10-02-20.2 Depth- 35kms.* 6.3N, 125.3E Mindanao, Phils. Mag: 5.3*
		eS	Z ₁		06	36				
1296	14	iP	Ns	17	37	13.3	130			
		iS	Ns		37	28.3				
1297	15	iP	Zs	12	46	11	114			
		iS	Ns		46	24.3				
1298	15	eS	NsEs	12	49	41.5				Very small
1299	15	eS	NsEs	14	20	41.5				Very small
1300	15	iP	Zs	14	55	26.5				
1301	15	eP	Z ₁	19	04	16	4,440			H=18-47-41.3 Depth-44kms.* 45.5N, 151.6E Kurile Islands Mag: 5.3*
		eS	N ₁ Z ₁		10	02				

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** Determined by PAS

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**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1302	16	iP	Zs	08	03	50.5			Small	
1303	16	iP	Zs	08	06	08	40			
		iS	Ns		06	13				
1304	16	iP	Zs	19	19	56	398		Felt: Laoag-III	
		iS	Ns		20	41				
1305	16	iP	Zs	21	27	08	174			
		iS	NsEs		27	28				
1306	17	iP	Zs	18	45	11.5	2,220		H=18-40-45.8 Depth-8kms.* 31.1N, 131.3E Kyushu, Japan Mag: 6.2*, 5½***	
		iS	Ns		48	47.5				
1307	17	iP	Zs	18	55	32.2			H=18-51-07.8 Depth-23kms.* 31.2N, 131.4E Kyushu, Japan Mag: 5.5*	
1308	18	iP	Zs	02	40	13.5	242			
		iS	NsZs		40	41.0				
1309	18	iP	Zs	12	02	41	2,700		H=11-57-33.0 Depth-95kms.* 3.2S, 136.4E West New Guinea Mag: 5.4*	
		iS	NsZs		06	58				
1310	18	iP	Zs	18	00	13.8	68			
		iS	NsEsZs		00	22.0				
1311	18	iP	Zs	21	31	42.5	40			
		iS	NsEsZs		31	47.4				
1312	18	iP	Zs	21	44	12.5	313			
		iS	NsEsZs		44	48.0				
1313	19	iP	NsEsZs	01	31	58.6	1,011		H=01-29-37.4 Depth-95kms.* 6.1N, 125.4E Mindanao, Phils. Mag: 5.7* Felt: Davao City-VI Gen. Santos-V Cag. de Oro-II Hinatuan-II	
		iS	NsEsZs		33	52.0				

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1314	19	eS	NsEsZs	01	55	47			Very small	
1315	19	eP eS	NsEsZs NsEsZs	17	55 56	34 28	480			
1316	19	eX eZ	N E Z N E Z	19	55 56	06 41				
1317	20	eP eS	Z ₁ Z ₁	05	27 35	20 10	6,500		H=05-08-57.6 Depth-Normal* 58.3N, 32.2W North Atlantic Ocean Mag: 5.6*, 6*** 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ ****	
1318	20	ePKP eX eX	Z ₁ Z ₁ Z ₁	15 16	46 00 07	02 36 24	13,700		H=15-26-41.5 Depth-Normal 1.8N, 101.0W East Central Pacific Ocean. Mag: 5.5*, 5 $\frac{1}{4}$ -5 $\frac{1}{2}$ *** 5.9****	
1319	20	iP iS	Zs NsEsZs	18	29	12.8 30.8	156			
1320	20	i(S)	NsEs	22	34	13.5			Small	
1321	20	i(S)	NsEs	22	54	38.3			Small	
1322	21	i(P)	Ns	05	20	37.5			Very small	
1323	21	i(P)	Ns	06	23	48.5			Small	
1324	21	iP iS	Zs Ns	07	22 23	49 05.5	143			
1325	21	iP eS	Ns Ns	07	30 30	25 37	100			
1326	21	eP eS	Z ₁ Z ₁	12	45 50	20 48	3,900			
1327	21	eP iS	Zs Ns	13	38 38	10 33.5	206			
1328	21	eP eS	Z ₁ Z ₁	21	33 39	18 21	4,580		H=21-29-21.7 Depth-Normal* 2.7N, 95.8E Off west coast of Northern Sumatra Mag: 4.9*	

*Determined by USCGS
**Determined by PAS

***Determined by BRK
****Determined by GOL

No.	Date	Phase	Comp.	Time(GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1329	22	iP ePcP eS	Zs Z ₁ Z ₁	03 04	58 01	21 09	3,480		H=03-52-37.4 Depth-Normal* 2.9N, 95.9E Off west coast of Northern Sumatra Mag: 5.3*	
1330	22	i(S)	Ns	09	04	55				
1331	22	eP eS	Z ₁ Z ₁	14	07 13	36 12	4,060			
1332	22	i(S)	Ns	21	36	14.5				
1333	23	i(S)	NsEs	04	26	40.2			Small	
	23								H=08-46-25.6 Depth-110kms.* 8.0N, 126.4E Mindanao, Phils.	
1334	23	iP iS	NsEsZs NsEsZs	09	41	11.5 27.5	139			
1335	23	i(S)	NsEs	13	48	36			Small	
1336	23	iP	Zs	21	34	07.2			Small	
1337	23	eP eS	Z ₁ N ₁	23	08 14	00 37	5,200			
	24								Felt: Gen. Santos at 0058Z. Not re- corded.	
1338	24	iP iS	NsEs NsEs	09	10	16 20.8	39			
1339	24	eP eS	Z ₁ N ₁	18	23 34	06 43	11,600		H=18-03-19.0 Depth-Normal* 15.2N, 45.8W North Atlantic Ridge Mag: 5.8*, 6.2**, 6***, 6 ¹ ****	
1340	25	iP iS	NsEsZs NsEsZs	02	35	19 31.6	108			
1341	25	i(S)	Ns	08	20	31.2			Small	
1342	26	eS	N	08	29	48.5			Small, local	

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
**** Determined by GOL

No.	Date	Phase	Comp.	Time(GMT)			Distance	T(sec)	A(mm)	Remarks
1343	26	iP iS	Ns Ns	09	55	07 24.5	152			
1344	26	eS	Ns	15	55	41			Small, local	
1345	27	eP eS	N ₁ N ₁	09	27	16 35 40	7,050		H=09-04-02.8 Depth-Normal* 60.9S, 56.0W South Sheiland Is. Mag: 5.8*	
1346	27	iP iS	NsEsZs NsEsZs	12	11	53.2 29.0	272			
1347	27	eX	N ₁	18	52	40				
1348	27	eP	N ₁ Zs	19	19	33			Teleseismic H=19-13-48.6 Depth-Normal* 9.4S, 107.8E South of Java Mag: 5.6*	
1349	28	eS	NsEsZs	10	22	21			Local	
1350	28	eP eS	NsEsZs NsEsZs	14	50	25 42	148			
1351	28	iP iS	Zs NsEsZs	17	36	16 33	148			
1352	28	eP eS	Z ₁ N ₁ Z ₁	18	02	02 06 16	2,680			
1353	29	iP iS	NsEsZs N ₁ Z ₁	16	24	58.8 10.0	2,400		H=16-20-00.4 Depth-145kms.* 7.2S, 128.8E Banda Sea Mag: 5.7* Felt at Darwin	
1354	29	iP	NsEsZs	20	11	10.2			Small	
1355	29	eP eS	Z ₁ N ₁ Z ₁	20	31	48 40 40	7,780		H=20-03-32.8 Depth-Normal* 32.9S, 19.7E Republic of South Africa. 12 dead, dozen injured, hund- reds homeless at Tulbagh and Wolseley Felt widely through- out Cape Province.	

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	T(sec)	A(mm)	Remarks
				h	m	s				
1356	29	iP iS	NsEsZs NsEsZs	22	52	35 58.6	207		Foreshock preceded computed origin time by approx. 5 secs. Mag: 5.9*, 6.1***	
1357	30	eP eS	Z ₁ N ₁ Z ₁	04	22	54 32 04	7,900		H=04-11-16.1 Depth-Normal* 31.9S, 177.9W Kermadec Islands Mag: 5.4*	
1358	30	eP eS	Zs NsZs	17	41	02 10	67			
1359	30	eP eS	Z ₁ N ₁	18	03	18 57	8,500		H=17-51-41.8 Depth-Normal* 31.9S, 178.0W Kermadec Islands Mag: 5.4*, 6.3**, 6-6 ¹ ****	
1360	30	eS	Ns	18	45	22			Small, local	

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
**** Determined By GOL

No. Date	Phase	Code	Time (hr:min)	Time (hr:min)	Time (hr:min)
1957	20	42	10	35	00
1957	20	42	10	35	00



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code 112] P110

1 MAY 1970
MAY 1970

Republic of the Philippines
Department of Commerce and Industry
WEATHER BUREAU
Quezon City

INSTRUMENTS

No. 243
 $\phi = 14^{\circ} 40'$
 $\lambda = 121^{\circ} 05'$

October 1969

No.	SEISMOMETER	COMPONENTS	PERIOD (Galvo)	PERIOD (Seismo)	MAGNIFICATION	REMARKS
/	HOSAKA Electro-Magnetic	N - S	1/13secs	5 secs	1,000	Smoke paper type
		E - W	1/13sec	5 secs	1,000	
		VERTICAL	1/13sec	5 secs	1,000	
/	ISHIMOTO	N - S	0.1	0.1	174	Smoke paper type
		E - W	0.1	0.1	174	
		VERTICAL	0.1	0.1	179	
/	SPRENGNETHER	N - S	7.2	3.5	3,000	Visual

STANDARD SEISMOMETERS

/	BENIOFF	N - S	0.75	1.0	12,000	
/	BENIOFF	E - W	0.75	1.0	12,000	
/	BENIOFF	VERTICAL	0.75	1.0	12,000	
/	SPRENGNETHER	N - S	100	15	1,500	
/	SPRENGNETHER	E - W	100	15	1,500	
/	SPRENGNETHER	VERTICAL	100	15	1,500	

SYMBOLS

- Z_s = WWSS Short Period Vertical Component
 N_s = WWSS Short Period N-S Component
 E_s = WWSS Short Period E-W Component
 Z_l = WWSS Long Period Vertical Component
 E_l = WWSS Long Period E-W Component
 N_l = WWSS Long Period N-S Component
 N_R = Sprengnether N-S Component
 Z_h = Hosaka Vertical Component
 N_h = Hosaka N-S Component
 E_h = Hosaka E-W Component
 M_b = Body Wave magnitude as calculated from Quezon City
 Gutenberg and Richter

$$M_b = \text{Log} \left(\frac{A}{T_s} \right) + Q$$

where: A = P wave amplitude in microns
 T = Period in seconds
 Q = Depth-distance factor

No.	Date	Phase	Comp.	Time(GMT)			Distance (kms.)	Remarks
				h	m	s		
1361	Oct. 1969 1	eP	Z ₁	05	26	00	8,160	H=05-05-43.2 Depth-4kms.* 11.9S, 75.1W Peru, 80 killed, 300 injured. Villages of Lampa & Chilifruta destroyed. Extensive damage at Comas. Mag: 5.9*, 6.4**, 6.1***
		eS	N ₁ Z ₁		35	43		
1362	1	iP iS	Ns Ns	07	45 45	28.5 48.2	172	
1363	1	ePKP	Z ₁	17	30	42	18,000	H=17-10-56.5 Depth-Normal* 0.8N, 85.0W Off coast of Ecuador Mag: 5.5*, 6.1**, 6.0***
1364	1	ePKP	Z ₁	20	14	14	14,100	H=19-53-15.7 Depth-Normal* 60.8S, 19.7W Southwestern Atlantic Ocean Mag: 5.6*
1365	2	iS	NsEs	15	31	57		Small, local
1366	2	iP iS	Zs NsEsZs	21	06 06	12 58.2	410	
1367	2	iP	Z ₁ Z _s	22	07	28	1,058	H=22-05-40.6 Depth-68kms.* 9.8N, 126.8E Mindanao, Phils. Mag: 5.3*
		eiS	N ₁ E _s		09	26		
1368	2	iP iS	Zs NsEsZs	22	16 16	02 20.7	163	
1369	3	eiP iS	Zs	06 39	39 51	36	130	
1370	3	e(S)	NsEs	10	05	46		
1371	3	eS	NsEs	10	59	50		
1372	3	eX	N ₁ Z ₁	15	53	20		Teleseismic 3.5S, 101.9E H=15-39-43.5 Depth-95kms.* Southern Sumatra Mag: 5.6*

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			Distance (kms.)	Remarks
				h	m	s		
1373	3	iP	NsEs	19	13	58	136	
		iS	NsEs		14	13.7		
1374	3	iP	NsEs	20	05	12	246	
		iS	NsEs		05	40		
	4						No Quake recorded	
1375	5	iP	NsEs	02	08	11.5	173	
		iS	NsEs		08	31.4		
1376	5	eP	Ns	11	47	51	156	
		eS	Ns		48	09		
1377	5	eP	Z ₁	16	36	15	1,240	H=16-34-15.8 Depth-33kms.* 7.1N, 123.7E Mindanao, Phils. Mag: 5.4*
		eS	Z ₁		38	42		
1378	5	iS	Ns	19	19	01	129	Very small
1379	5	iP	Ns	19	47	59		Small
1380	6	iP	Zs	12	05	29	129	
		iS	NsEsZs		05	44		
1381	6	iP	Zs	12	48	27	138	H=12-48-05.0 Depth-59kms.* 15.ON , 120.1E Luzon, Phils. Mag: 5.6* Felt: Iba- Int. VI, Manila, (MIA)Pasay, Dagupan-Int. IV, Gulod, Talisay, Bats-IV Quezon City and Baguio City-Int. III Tarlac-Int. III
		iS	NsEsZs		48	43		
1382	6	iP	Zs	14	20	18.8	517	
		iS	NsEsZs		21	17.0		
1383	6	iP	Zs	16	27	08.2	146	
		iS	NsEsZs		27	25.0		
1384	6	iP	Zs	17	56	00	121	
		iS	NsEsZs		56	14		
1385	6	iP	Zs	18	56	13	545	
		iS	NsEsZs		57	14.4		

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No.	Date	Phase	Comp.	Time (GMT)			Distance (kms.)	Remarks
				h	m	s		
1386	6	iP eS	Zs NsEsZs	21	48 50	37.4 36.0	1,160	H=21-46-32.7 Depth-Normal* 7.2N, 123.7E Mindanao, Phils. Mag: 5.2*
1387	7	iS	NsEs	02	55	46.5		Small
1388	7	iP iS	Zs NsEsZs	05	55 56	48.5 10.5	192	
1389	7	iP	Zs	06	02	43		Small
1390	7	iP	Zs	07	36	35.5		Small
1391	7	eP	Z ₁	08	04	25		Teleseismic
1392	7	iP eS	Zs NsEsZs	08	44 45	38 03	219	
1393	7	iP iS	Zs NsEsZs	10	03 04	47.7 04.8	148	
1394	7	iP iS	Zs NsEsZs	16	48 48	21.5 36.5	129	
1395	7	iP iS	Zs NsEsZs	18	40 40	35.5 53.5	156	
1396	8	iP	NsEsZs	07	50	45		Small
1397	8	iP	Zs	16	40	45.5		Small
1398	9	eS	NsEs	18	21	48.5		Small, local
1399	9	eS	NsEs	20	52	00		Very small
1400	9	eS	NsEs	23	50	32		Very small
1401	10	eS	Z ₁	13	46	29		Teleseismic
1402	10	eS	EsZs	16	11	40		Small, local
1403	10	eP	Z ₁	17	16	18		Teleseismic H=17-09-57.5 Depth-15kms.* 29.3N, 130.3E Ryuku Islands Mag: 4.9*
1404	11	iP iS	Zs NsEsZs	09	32 33	50.2 09.9	170	
1405	11	eS	Ns	14	07	07		Very small
1406	11	iP	Ns	17	08	08.7		Very small

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No.	Date	Phase	Comp.	Time (GMT)			Distance (kms.)	Remarks
				h	m	s		
1407	11	iP iS	Zs NsEsZs	18	37	00 18.6	161	
1408	11	iP iS	Zs NsEsZs	19	32	47.8 04.7	147	
1409	12	iP iS	NsZ ₁ NsZ ₁	03	34	36.7 57.0	176	
1410	12	iP eS	Z ₁ Z ₁	03	37	22 58	1,620	H=03-31-12.8 Depth-166kms.* 0.1N, 123.7E Northern Celebes Mag: 5.4*
1411	12	eP	NsEs	08	49	01		
1412	12	eP eS	NsEs NsEs	14	29	23 41	156	
1413	13	iP iS	N E Z N E Z	07	05	31 27	6,700	H=06-56-01.6 Depth-246kms.* 18.9S, 169.3E New Hebrides Islands Felt at Port Vila Mag: 5.9*, 6.5**, 6.2***
1414	13	iP iS	N E Z N E Z	23	09	31 02	275	
	14							Instruments out of order
1415	15	eP eiS	Ns N ₁ E ₁ Z ₁	00	43	20 35	1,205	
1416	15	iS	Ns	16	49	14		
1417	16	eS	NsEs	04	03	22		Very small
1418	16	iS	NsEs	06	05	19		Small
1419	16	eS	NsEs	08	57	09		Very small
1420	17	eS	NsEs	10	46	27		Small
1421	17	eS	Ns	11	41	27		Very small
1422	17	eiP iS	NsZs NsZs	12	17	38 02.8	307	
1423	17	iP eiS	NsZs NsZs	22	09	58.5 14.5	138	
1424	17	eS	NsZs	22	43	30		Very small

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** Determined by PAS

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**** Determined by GOL

No.	Date	Phase	Comp.	TIME(GMT)			Distance (kms.)	Remarks
				h	m	s		
1425	17	iP eiS	NsZs NsZs	22	49 50	38 22.5	395	
1426	18	eP eS	NsEs NsEs	03	58 59	55 15	175	
1427	18	eP	Ns	08	53	51		Teleseismic H=08-44-00.0 Depth-24kms.* 52.5N, 173.5E Near Islands, Aleutian Is. Mag: 5.6*
1428	18	eP eS	NsEs NsEs	23	44 45	47 17	265	
1429	19	iP iS	Zs NsZs	02	23 23	16.5 36.7	176	
1430	19	iP iS	Zs NsEs	03	49 49	48.6 59.0	88	
1431	19	iP eS	Zs N ₁	06	19 21	40 49	1,152	H=06-18-01.8 Depth-70kms.* 10.1N, 126.1E Philippines Mag: 5.0*
1432	19	iP iS	Zs NsEs	07	21 22	40.5 09.0	249	
1433	19	iP iS	Zs N _R	12	27 29	49 32.5	922	H=12-25-45.1 Depth-60kms.* 7.7N, 126.0E Mindanao, Phils. Mag: 5.4* Felt: Davao City and Hinatuan - Int. II
1434	20	eP eS	Zs NsEsZs	04	13 14	20 21	543	
1435	20	eS	NsEs	07	05	33		Small
1436	20	iP iS	Zs N _h E _h	08	49 49	13.2 30.0	146	H=08-48-42.3 Depth-Normal* 15.ON, 119E Luzon, Phils. Felt: Iba-Int. III Manila and Quezon City-I

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** Determined by PAS

*** Determined by BRK
**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			Distance (kms.)	Remarks
				h	m	s		
1437	20	iP eS	Zs NsEsZs	10	56	22.5 44.0	188	
1438	20	eP	Zs	13	31	40		Small
1439	20	iP	Zs	14	21	22.3		Small
1440	20	iP iS	Zs EsZsNs	20	23	09. 27.5	161	
1441	20	eP eS	Es NsEsZs	21	25	35 46	94	
1442	21	iP	Zs	03	18	22.5		Small
1443	21	iP	Zs	05	18	17.8		Small
1444	21	eS	Ns	05	28	00		Small
1445	21	iS	Ns	07	32	27		Small
1446	21	iP	Zs	11	50	49.5		Small
1447	21	eP iS	Zs Ns	12	38	42 00.3	159	
1448	21	i(S)	Ns	18	26	30.8		Small
1449	21	iP	Zs	19	35	08.5		Small
1450	21	iP eS	Zs E ₁ Z ₁	21	03	50.2 00.0	6,860	H=20-53-47.5 Depth-48kms.* 51.3N, 179.2W Andreanof Is., Aleutian Is. Mag: 5.9*, 6**, 5 ¹ ****, 5.9(PAL)
1451	22	eP	Z ₁	04	57	27		
1452	22	iP	Zs	04	58	33.5		Small
1453	22	iS	Ns	05	04	08.5		Small
1454	22	eP eS	Zs N ₁ Z ₁	07	19	10 51	4,140	H=07-12-07.7 Depth-71kms.* 4.8S, 152.5E New Britain Region Mag: 5.3*
1455	22	iP iS	Zs Ns	17	38	52.5 12.4	174	

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No.	Date	Phase	Comp.	Time(GMT)			Distance (kms.)	Remarks
				h	m	s		
1456	23	eS	N ₁ E ₁ Z ₁	23	11	12		
1457	24	eS	N _R	00	33	05	Small	
1458	24	iP	E _h	02	33	55.4	175	
		iS	N _h E _h Z _h		34	15.4		
1459	24	iP	Zs	05	46	59.4	30	
		iS	NsEsZs		47	03.3		
1460	24	iP	N ₁ E ₁ Z ₁	21	49	02	2,570	
		eiS	N ₁ E ₁ Z ₁		53	08		
1461	25	iP	Zs	02	09	37	112	
		iS	NsEs		09	50		
1462	25	eP	Zs	05	20	31	Small H=05-17-07.4 Depth-82kms.* 0.9N, 125.7E Molucca Passage Mag: 5.1 *	
1463	25	iP	Zs	13	09	23.2	55	
		iS	NsEs		09	29.6		
1464	25	eP	Zs	17	37	01	340	
		iS	NsEs		37	39.5		
1465	25	iP	Zs	22	54	37.5	238	
		iS	Ns		55	04.6		
1466	26	iP	Zs	02	04	12	1,460	
		eS	N ₁ E ₁		05	53		
1467	26	iP	Zs	03	02	23	1,420	
		eS	N ₁ E ₁		04	49		
1468	26	eP	Zs	04	07	25	Small	

* Determined by USCGS
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*** Determined by BRK
**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			Distance (kms.)	Remarks
				h	m	s		
1469	26	iP eS	ZsZ ₁ N ₁ E ₁	06	49 58	12 24	8,240	H=06-38-03.4 Depth-127kms.* 16.2S, 173.9W Tonga Islands Felt at Apia Mag: 5.8*, 6.7**
1470	26	iP iS	Zs NsEs	11	34 34	05.4 23.7	159	
1471	26	eP iS	Zs NsEs	16	25 26	45 15.3	267	
1472	26	iS	NsEs	16	40	14.4		Small
1473	26	eP eS	Z ₁ N ₁	19	28 31	40 42	1,830	
1474	26	eP eS	Z ₁ N ₁	21 22	57 07	06 20	9,780	H=21-39-20.8 Depth-Normal* 53.4S, 23.5E South of Africa Mag: 5.9*
1475	27	iS	NsEs	05	46	26.5		Small
1476	27	eP eSS	Z ₁ E ₁	08	34 41	44 40	10,300	H=08-10-58.3 Depth-Normal* 44.9N, 17.2E Yugoslavia Mag: 5.3*, 6**, 6.3**** 14 Dead, 1100 injured & heavy property damage at Banja Luka. Felt at Beo- grad, Trieste, Italy and Budapest, Hungary.
1477	27	iP iS	Zs Ns	09	14 15	50 49.7	531	
1478	27	iS	NsEs	09	33	55.6		Small
1479	27	iS	NsEs	09	35	18.7		
1480	27	iP iS	Zs NsEs	16	00 01	50.4 04.0	117	
1481	27	iP iS	Zs NsEsZs	18	09 10	44.5 02.5	156	
1482	28	iP	Zs	05	13	56.5		Small

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
**** Determined by GOL

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No.	Date	Phase	Comp.	Time(GMT)			Distance (kms.)	Remarks
				h	m	s		
1483	28	iP iS	Zs N _R	07	19 20	30.6 06.0	232	H=07-19-08.5 Depth-60kms.* 16.3N, 122.2E Luzon, Phils. Mag: 4.9* Felt: Casiguran-Int. II
1484	28	iP iS	Zs NsEs	08	03 04	53 25	282	
1485	28	iP iS	Zs NsEs	08	31 31	16 44	245	
1486	28	iP iS	Zs NsEs	11	48 48	34.6 52.0	151	
1487	28	iP eS	Zs NsEs	12	05 06	59.5 47.5	426	
1488	28	iP eS	Zs NsEsZs	12	08 08	33.5 10.0	322	
1489	28	eP iS	Zs NsEs	16	06 06	10 23.4	115	
1490	28	iP iS	Zs NsEsZs	19	44 45	39 08.6	261	
1491	29	iP eS	Zs NsEs	08	44 44	05 42	327	
1492	29	iP	Zs	09	01	58.5		Small
1493	29	iS	Ns	16	41	39.3		Small
1494	29	iP	Zs	16	43	29		Small H=16-40-07.3 Depth-93kms.* 15S, 126.2E Molucca Passage Mag: 3.0*
1495	29	eP eS	Zs E ₁	18	41 42	31 49	694	
1496	30	iP	Zs	00	11	19.5		Small H=00-05-39.4 Depth-151kms.* 37.6N, 140.1E Honshu, Japan Mag: 5.0*
1497	30	eP eS	Zs Z ₁	00	49 51	52 23	811	H=00-47-59.8 Depth-48kms.* 22.4N, 121.4E Taiwan Region Mag:4.4*

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
**** Determined by GOL

No.	Date	Phase	Comp.	Time(GMT)			Distance (kms.)	Remarks
				h	m	s		
1498	30	iP	Zs	06	35	11	131	
		iS	NsEsZs		35	26.2		
1499	30	iP	Zs	14	42	52.3	257	
		iS	NsEsZs		43	21.5		
1500	31	eX	N ₁ E ₁ Z ₁	07	12	20		Teleseismic H=07-00-13.4 Depth-40kms.* 37.1N, 142.0E Off East coast of Honshu, Japan. Mag: 5.0*
1501	31	eP	NsEsZs	07	46	44	10,880	H=07-34-15.9 Depth-57kms.* 17.3S, 174.3E Fiji Is. Mag:5.0*
		eS	NsEsZs		58	00		
1502	31	iP	Zs	09	11	38.6	157	Felt: MIA, Pasay City-II
		iS	NsEsZs		11	56.7		
1503	31	iP	N ₁ E ₁ Z ₁	11	43	09	7,000	H=11-33-04.8 Depth-49kms.* 51.3N, 179.0W Andreanof Is, Aleutian Is. Mag: 5.9*, 6.5**, 5.9-6.1 (Brk)
		iS	E ₁ Z ₁		51	25		
1504	31	iS	NsEs	14	24	18		Very small
1505	31	eS	NsEsZs	18	51	30		Small
1506	31	iP	Zs	19	15	16	156	
		iS	NsEsZs		15	34		
1507	31	iS	NsEsZs	21	08	54		Small, local
1508	31	iP	NsEsZs	22	38	30	524	
		iS	NsEsZs		39	29		

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
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International Seismological Center
The Geophysics Laboratory
6 South Oswald Road
Edinburgh 9, Scotland



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Republic of the Philippines
 Department of Commerce and Industry
 WEATHER BUREAU
 Quezon City

INSTRUMENTS

No. 243
 $\phi = 14^{\circ}40'$
 $\lambda = 121^{\circ}05'$

November, 1969

No.	SEISMOMETER	COMPONENTS	PERIOD (Galvo)	PERIOD (Seismo)	MAGNIFICATION	REMARKS
1	HOSAKA Electro- Magnetic	N - S E - W VERTICAL	1/13sec 1/13sec 1/13sec	5 secs 5 secs 5 secs	1,000 1,000 1,000	Smoke paper type
1	ISHIMOTO	N - S E - W VERTICAL		0.1 0.1 0.1	174 174 179	Smoke paper type
1	SPRENGNETHER	N - S	7.2	3.5	3,000	Visual

STANDARD SEISMOMETERS

1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,000	
1	BENIOFF	VERTICAL	0.75	1.0	12,000	
1	SPRENGNETHER	N - S	100	15	1,500	
1	SPRENGNETHER	E - W	100	15	1,500	
1	SPRENGNETHER	VERTICAL	100	15	1,500	

Y	SEISMOGRAMS	VERTICAL	100	T2	1'000
Y	SEISMOGRAMS	E - W	100	T2	1'000
Y	SEISMOGRAMS				
Y	SEISMOGRAMS				
Y	SEISMOGRAMS				
Y	SEISMOGRAMS				
Y	SEISMOGRAMS				
Y	SEISMOGRAMS				

- Z_s = WWSS Short Period Vertical Component
- N_s = WWSS Short Period N-S Component
- E_s = WWSS Short Period E-W Component
- Z_l = WWSS Long Period Vertical Component
- N_l = WWSS Long Period N-S Component
- E_l = WWSS Long Period E-W Component
- N_R = Sprengnether N-S Component
- Z_h = Hosaka Vertical Component
- N_h = Hosaka N-S Component
- E_h = Hosaka E-W Component

Y	SEISMOGRAMS	N - S	100	T2	1'000	
Y	SEISMOGRAMS	E - W	100	T2	1'000	
Y	SEISMOGRAMS	N - S	100	T2	1'000	
Y	SEISMOGRAMS	E - W	100	T2	1'000	
Y	SEISMOGRAMS	N - S	100	T2	1'000	
Y	SEISMOGRAMS	E - W	100	T2	1'000	

Y = 387.02
 S = 75.46
 No. 312

Department of Geology
 University of California
 Berkeley, California

No.	Date	Phase	Comp.	Time (GMT)			Distance	Remarks
				h	m	s		
	1969 Nov.							
1509	1	iP	Zs	04	34	45		Small
1510	1	iS	Ns	06	42	39		
1511	1	iP	Zs	07	16	29		Small
1512	1	eS	Es	11	25	40.8		
1513	1	iP	ZsEs	21	31	17		
1514	2	iP	Zs	07	23	06.6	160	
		iS	NsEs		23	25.0		
1515	2	iP	Zs	16	29	39.3		Small
1516	2	iP	Zs	18	58	31		Teleseismic H=18-53-06.6 Depth-57 kms.* 6.5S, 107.1E; Java Mag: 5.4*
1517	2	iP	Zs	19	59	21.7		H=19-53-58.7 Depth-63kms.* 6.6S, 107.0E ; Java Mag: 5.2*
1518	3	iP	Zs	07	47	49.5	156	
		iS	NsEsZs		48	07.5		
1519	3	eP	Zs	13	20	52	623	H=13-19-26.7 Depth-Normal* 20.5N, 120.4E Phil. Is. Region Mag: 4.6*
		eS	NsEs		22	02		
1520	3	i(P)	Zs	17	45	02.5		Small
1521	3	iS	Ns	18	04	45		Small
1522	3	iP	Zs	19	58	07.5	143	
		iS	NsEs		58	24.0		
1523	3	iP	Zs	23	02	54.5		Small
1524	4	iP	Zs	08	55	31.8	523	H=08-50-46.9 Depth-347kms* 33.8N, 137.1E ; Near south coast of Honshu, Japan Mag: 5.4*
		iS	Zs		56	30.7		
1525	4	iS	NsEs	12	18	48		Small
1526	4	iS	NsEs	18	18	52		Small

* Determined by USCGS
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**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			T(sec)	A(mm)	M _b	Distance kms.	
				h	m	s					
1527	4	iP eS	Zs N ₁ E ₁	22	07 10	53.5 49.0	1.2	5.0	5.7	1,740	H=22-04-11.9 Depth-Normal* 0.1S, 125.0E Molucca Sea Mag: 5.4*
1528	5	iP	Zs	03	04	50.8					Small
1529	5	eP	Zs	07	45	49					Small
1530	5	iP	NsEsZs	10	32	22.5					Small
1531	5										Felt: Dipolog-IV 11-26-24(Cebu reading)
1532	5	iP eS	Zs NsEsZs	23	06 06	09 59				444	H=23-04-59.7 Depth-17kms.* 19.2N, 120.5E Phil. Is. Region Mag: 4.8*
1533	5	iP iS	Zs NsEsZs	03	27 27	38.8 53.4				108	
1534	6	iP iS	Zs NsEsZs	11	55 55	13.4 32.2				163	
1535	6	eP eS	Z ₁ E ₁	20	30 38	32 38				6,800	H=20-20-18.5 Depth-36kms* 51.5N, 178.9W Andreanof Is., Aleutian Is. Felt on Adak & Amchitka Mag: 5.5*, 5 ³ / ₄ ****
1536	7	eP iS	Zs NsEsZs	00	07 07	06.4 21.4				130	
1537	7	iP iS	NsEsZs NsEsZs	02	37 38	12 49.2				866	H=02-35-06.1 Depth-413kms* 6.9N, 124.6E Mindanao, Phils. Mag: 5.1*
1538	7	iP iS	NsEsZs NsEsZs	13	44 51	19.8 26.0				1,123	H=13-41-13.4 Depth-123kms* 26.6N, 126.3E Ryuku Islands Mag: 5.3*

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No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	Remarks
				h	m	s		
1539	7	iP iS	NsEsZs NsEsZs	18	43 51	54 47	6,600	H=18-33-59.9 Depth-35kms* 27.9N, 60.1E Southern Iran Felt in Southern Iran Mag: 6.1*
1540	8	iP eiS	NsEsZs N ₁ E ₁	01	51 59	15 36	7,100	H=01-41-41.3 Depth-23kms* 16.2S, 167.5E New Hebrides Islands Mag: 5.7*
1541	8	eS	NsEs	06	18	20		Very small
1542	8	eS	NsEsZs	08	08	38		Small
1543	8	eiP iS	NsEsZs NsEsZs	10	09 09	37 53	138	
1544	8	iP eiS	NsEsZs NsEsZs	21 22	58 02	53 21	2,100	H=21-55-09.2 Depth-Normal* 1.1S, 127.0E Halmahera Mag: 5.9 Ms*
1545	8	iP iS	NsEsZs NsEsZs	23	29 33	55 06	1,920	H=21-26-00.0 Depth-55kms* 1.0S, 127.0E Halmahera, Mag: 5.3*
1546	9	eX	N ₁ E ₁ Z ₁	01	50	00		Telesismic
1547	9	iS	NsEsZs	06	06	14		Small, local
1548	9	eP eS	NsEsZs NsEsZs	09	17 24	10 44	6,230	H=09-07-50.9 Depth-185kms* 16.3S, 167.9E Hew Hebrides Is. Mag: 5.3*
1549	10	iP iS	Zs NsEs	20	02 02	06.2 22.8	144	
1550	10	iP iS	Zs NsEs	22	13 14	46.8 04.0	149	

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No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	Remarks
				h	m	s		
1551	11	iP iS	Zs NsEs	03	24	30.2 55.2	219	
1552	11	iP eS	Zs N _R	16	06 08	36.6 06.0	797	H=16-06-03.6 Depth-30kms* 15.7N, 119.3E Luzon, Phils. Mag: 4.3*
1553	11	iP iS	Zs N _R	16	17 18	30 06	318	H=16-16-56.6 Depth-Normal* 15.5N, 119.4E Luzon, Phils. Mag: 4.4*
1554	12	iP iS	Zs NsEs	03	29	22.2 36.0	119	
1555	12	iS	Ns	07	32	12		Small
1556	12	iP iS	Zs NsEs	07	48	31.5 49.5	156	
1557	12	iP iS	Zs NsEs	10	19	45.7 03.3	153	
1558	12	iP	Zs	12	36	32.4		Small H=12-29-42.5 Depth-Normal* 42.4N, 144.9E Hokkaido, Japan Mag: 5.2*
1559	12	iP	Zs	15	47	08.4		Small
1560	12	iP eS eLq eLr	Zs N ₁ N ₁ Z ₁	19	19 28 37 40	50.2 43.0 04.0 06.0	7,680	H=19-09-02.0 Depth-53kms* 53.0N, 168.3W Fox Islands, Aleutian Is. Mag: 5.4*, 5.7-5.9*** 5.75-6.0(PAL)
1561	13	eX	N ₁ E ₁ Z ₁	09	08	24		Teleseismic
1562	13	eS	NsEs	11	59	08		Small
1563	13	eS	NsEsZs	18	38	27		Small, local
1564	13	eX	N ₁ E ₁ Z ₁	22	32	16		
1565	14	iP iS	NsEsZc NsEsZc	07	07 08	43.4 01.3	155	
1566	15	iS	NsEs	21	44	42		Small, local
1567	16	iP	Zs	11	10	02.8		Small

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No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	Remarks
				h	m	s		
1568	16	eP	N ₁ Z ₁	20	23	44		Teleseismic H=20-09-10.4 Depth-62kms* 6.2S, 147.9E East New Guinea Region Felt in eastern New Guinea and New Britain Mag: 4.9*
1569	16	iP iS	Zs Zs	22	43	09 50.5	368	
1570	17	iP	Zs	04	46	50.5		Small
1571	17	iP	Zs	05	22	28 23 30	730	H=05-20-50.1 Depth-82kms* 10.ON, 125.9E Leyte, Phils. Mag: 5.1*
1572	17	iP eS	Zs N _R	16	12	08.2 27.0	163	
1573	18	iP iS	Zs NsEsZs	06	31	16 58.2	373	
1574	18	iP iS	Zs NsEsZs	10	40	12.3 32.3	174	
1575	18	iP iS	Zs NsEs	12	24	58.5 16.2	151	
1576	19	eP	N _R	14	24	58		Small
1577	19	eP	N _R	22	36	01		Small
1578	20	eP	N ₁ E ₁ Z ₁	21	16	40		Teleseismic H=21-00-29.0 Depth-53kms* 43.3N, 147.9E Kurile Islands Mag: 5.1*
1579	20	eX	N ₁ E ₁ Z ₁	23	58	00		Teleseismic H=23-46-11.6 Depth-Normal* 56.6N, 153.2W Kodiak Island Region Mag: 5.6ML*, 5.1MB*, 5.5MS*, 5.3****
1580	21	iP iS	NsEsZs NsEsZs	02	11	39 48	3,520	H=02-05-35.3 Depth-20kms* 2.1N, 94.6E Off west coast of Northern Sumatra Mag: 6.4*, 7.5** 8.2****
1581	21	eX	N ₁ E ₁ Z ₁	08	29	16		Teleseismic

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No.	Date	Phase	Comp.	Time(GMT)			Distance kms.	Remarks
				h	m	s		
1582	21	iP eS	NsEsZs NsEsZs	23	37	20.8 39.0	158	
1583	22	iP iS	N _R N _R	23	18	58 46	6,480	H=23-09-37.2 Depth-Normal* 57.8N, 163.5E Near east coast of Kamchatka Tsunami heights (crest to trough in meters) Shemya .52 Attu .40, Adak .27 Mag: 6.3MB, 7.3MS*, 7.1** 7***, 7 ¹ ****
1584	23	iP iS	NsEsZs NsEsZs	01	48	57 01	30	
1585	23	eP iS	NsEsZs NsEsZs	10	16	28 47	165	
1586	23	eS	NsEsZs	12	20	22		
1587	23	eS	NsEsZs	14	25	19		
1588	23	eP eS	NsEsZs NsEsZs	19	06	52 44	460	
1589	24	eP eS	NsEsZs NsEsZs	03	16	25 45	175	
1590	24	eP iS	NsEsZs NsEsZs	17	31	58 27.5	260	
1591	24	iP eS	NsEsZs NsEsZs	21	41	20 12	460	
1592	24	eP eS eLr	N ₁ E ₁ Z ₁ N ₁ E ₁ Z ₁ N ₁ E ₁ Z ₁	23	12	40 12 12	5,800	H=22-51-50.1 Depth-Normal* 56.2N, 153.6W Kodiak Island Region Mag: 5.5MB, 5.0ML* 5.4***, 5.7****
1593	24	iP iS	NsEsZs NsEsZs	23	34	11 29	155	
	25							NO QUAKE RECORDED
1594	26	eP eS	NsEsZs NsEsZs	04	43	16 35	168	
1595	26	eS	NsEsZs	07	29	15		

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No.	Date	Phase	Comp.	Time(GMT)			Distance kms.	Remarks
				h	m	s		
1596	26	eX	N ₁ E ₁ Z ₁	12	53	42		H=12-44-04.7 Depth-33kms* 16.8S, 167.7E New Hebrides Islands Felt at Port Vila Mag: 5.4*, 6.3**, 6.0*** 6.3****
		eS	N ₁ E ₁ Z ₁	13	01	42		
	27							NO QUAKE RECORDED
1597	28	iP	NsEs	13	52	16	2,100	H=13-47-08.7 Depth-75kms* 6.9S, 129.7E Banda Sea Mag: 5.6*
		eS	NsEs		56	14		
1598	28	iP	NsEs	18	54	52.5	156	
		iS	NsEs		55	10.5		
1599	29	iS	NsEsZs	04	22	41		Small H=04-17-38.9 Depth-82kms* 7.4S, 128.2E Banda Sea Mag: 5.4*
1600	29	eS	NsEs	07	20	03.5		Very small
1601	29	iP	NsEsZs	13	54	13.5	116	Felt: Gulod, (Talisay) Batangas - Int. III
		eiS	NsEsZs		54	27.0		
1602	29	eS	NsEsZs	15	02	19		Small, local
1603	30	iP	Zs	03	41	48.8	83	
		iS	Zs		41	58.6		
1604	30	eP	Zs	16	38	39		
1605	30	eP	Zs	20	06	39	90	
		eS	Zs		06	49.6		

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No. 244
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December, 1969

No.	SEISMOMETER	COMPONENTS	PERIOD (Galvo)	PERIOD (Seismo)	MAGNIFICATION	REMARKS
1	HOSAKA Electro- Magnetic	N - S E - W VERTICAL	1/13 sec 1/13 sec 1/13 sec	5 secs 5 secs 5 secs	1,000 1,000 1,000	Smoke paper type
1	ISHIMOTO	N - S E - W VERTICAL		0.1 0.1 0.1	174 174 179	Smoke paper type
1	SPRENGNETHER	N - S	7.2	3.5	3,000	Visual

STANDARD SEISMOMETERS

1	BENIOFF	N - S	0.75	1.0	12,000	
1	BENIOFF	E - W	0.75	1.0	12,000	
1	BENIOFF	VERTICAL	0.75	1.0	12,000	
1	SPRENGNETHER	N - S	100	15	1,500	
1	SPRENGNETHER	E - W	100	15	1,500	
1	SPRENGNETHER	VERTICAL	100	15	1,500	

- Z_s = WWSS Short Period Vertical Component
- N_s = WWSS Short Period N-S Component
- E_s = WWSS Short Period E-W Component
- Z_l = WWSS Long Period Vertical Component
- N_l = WWSS Long Period N-S Component
- E_l = WWSS Long Period E-W Component
- N_R = Sprengnether N-S Component
- Z_h = Hosaka Vertical Component
- N_h = Hosaka N-S Component
- E_h = Hosaka E-W Component



No.	Date	Phase	Comp.	h	Time (GMT)		Distance kms.	Remarks
					m	s		
	1969 Dec.							
1606	1	iP eS	NsEs NsEs	17	29	11.3 26.5	131	
1607	1	iP iS	Zs NsEsZs	17	35	20 37.5	150	
1608	1	eX	E ₁ Z ₁	23	36	24		Teleseismic H=22-13-53.4 Depth-41kms. 16.7°N; 60.8°W Leeward Islands Mag: 5.6*
1609	2	iP	NsEsZs	14	20	51.3		Small
1610	2	eP	NsEsZs	14	22	32		Small
1611	2	iP iS	Zs NsEsZs	17 18	59 01	05.5 12.5	1,135	H=17-57-04.3 Depth-102kms. 8.2°N; 126.3°E Mindanao, Phils. X Mag: 5.7* Felt: Davao City-Int. IV Cagayan de Oro - IV Hinatuan - IV Malaybalay-III Tacloban - I
1612	3	iP	Zs	04	07	22.2		Small
1613	3	iS	NsEs	07	37	27.6		Small
1614	3	iP iS	Zs Ns	09	27	30 51	183	
1615	4	iP iS	Zs Zs	06	03	15.5 36.5	183	
1616	4	eP	Zs	08	56	59.5		Very small H=08-50-21.6 Depth-20 kms. 40.7°N; 144.7°E Off east coast of Honshu Mag: 5.7*
1617	5	eP	NsEs	06	55	01		Very small
1618	5	iP iS	NsEsZs NsEsZs	08	14 15	51.5 09.8	162	
1619	5	iP iS	NsEsZs NsEsZs	11	04 04	00 15.2	131	
	6							No Quake recorded
1620	7	iP	Zs	02	30	38.2		Small
1621	7	iP	Zs	03	17	23		Very small

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No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	Remarks
				h	m	s		
1622	7	iP	Zs	04	04	17.3		Small
1623	7	iP iS	Zs E ₁	13	37 41	42 36	2,420	H=13-32-45.2 Depth-119kms. 6.7°S; 129.6°E Banda Sea , Mag:5.5* A = 0.9mm T = 0.8sec
1624	7	iP	Zs	17	37	04.5		Small
1625	7	iP iS	Zs NsEs	21	47 49	57.1 23.7	771	H=21-46-15.1 Depth-51kms. 9.6°N; 125.6E Mindanao, Phils. X Mag: 5.2* Felt: Surigao- Int. V Hinatuan - I
1626	8	iP	Zs	03	59	08.8		Small
1627	8	iP eS	Zs N ₁ E ₁	05	07 10	41.8 18.0	1,520	H=05-04-19.7 Depth-101kms. 1.7°N; 127.3°E Halmahera , Mag: 5.5*
1628	8	iP eS	Zs N ₁ E ₁	09	41 43	00.4 54.0	1,740	H=09-37-39.0 Depth-194kms. 0.1S, 122.8E Northern Celebes Mag: 5.1*
1629	8	iP	Zs	17	00	44		Small
1630	8	iP iS	Zs NsEsZs	18	09 09	25.5 43.0	152	
	9							No Quake recorded
1631	10	iP eS	Zs N ₁ E ₁	20	03 11	23.3 19.0	6,700	H=19-53-58.2 Depth-21kms. 14.8°S; 167.0°E New Hebrides Islands Mag: 5.4*
1632	11	eP iS	Zs Zs	17	50 50	00 30.5	269	
1633	11	eS	Zs	22	17	31.8		Small
1634	12	eX	N ₁ Z ₁	00	27	51		
1635	12	iS	Zs	07	45	10		Very small
1636	13	eX	Zs	03	39	37		H=03-19-58.3 Depth-Normal 1.0°N; 28.0W Central Mid-Atlantic Ridge Mag: 5.6*
1637	13	eX	Zs	03	45	19		H=03-40-34.8 Depth-358kms. 34.0°N; 137.0°E Near south coast of Honshu, Japan Mag: 5.1*

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No	Date	Phase	Comp.	Time(GMT)			Distance kms.	Remarks
				h	m	s		
1638	13	iP eS	NsEsZs N ₁ Z ₁	04	07 10	22 32	1,900	H=04-03-56.4 Depth-56kms. 1.3°N; 126.4°E Molucca Passage Mag: 5.3*
1639	13	iS	Zs	19	27	48		Small, local
1640	13	iP iS	NsEsZs NsEsZs	21	24 26	41 27	945	H=21-37-06.0 Depth-20kms. 23.9°N; 126.5°E Ryuku Islands Region Mag: 5.4*
1641	13							H=22-06-55.3 Depth-42kms. 4.2°N; 126.3°E Talaud Islands Mag: 5.6*
1642	14	iP eS	Zs N ₁ E ₁	02	45 47	27.4 40.0	1,184	H=02-42-09.4 Depth-42kms. 2.0°N; 126.9°E Molucca Passage Mag: 6.0*
1643	14	eP eS	N ₁ E ₁ N ₁ E ₁	18 19	55 03	54 09	5,880	H=18-37-09.5 Depth-Normal 8.2°N; 58.5E Carlsberg Ridge Mag: 6.0*
1644	14							H=14-18-52.9 Depth-600kms. 6.4°N; 123.6°E Mindanao, Phils. Mag: 4.6*
1645	15	iP iS	Zs NsEsZs	03	24 25	47.5 04.5	148	
1646	15	iP iS	Zs NsEs	12	32 32	11 28.4	151	
1647	16	eP iS	Zs NsEs	23	09 09	03 15	103	
1648	17	iS	Ns	02	47	03.6		Small
1649	17	iS	Ns	03	02	28.4		Small
1650	17	iP iS	Zs Ns	15	28 28	30.6 53.0	196	
1651	18	iP iS	Zs NsEsZs	04	37 37	15 18.5	28	
1652	18	iS	NsEsZs	07	49	34		Very small
1653	18	iS	NsEsZs	08	27	53		
1654	18	iS	NsEsZs	08	31	42		Very small

* Determined by USCGS
** Determined by PAS

*** Determined by BRK
**** Determined by GOL

No.	Date	Phase	Comp.	Time (GMT)			Distance kms.	Remarks
				h	m	s		
1655	18	iP iS	NsEsZs NsEsZs	13	38 43	46 55	3,520	H=13-32-05.2 Depth-344kms. 46.3°N; 142.5°E Sakhalin Is. Felt widely on Hokkaido Max. Int. (III) (JMA) Mag: 5.9*, 6.5**
1656	18	iP iS	Zs NsEsZs	17	02 02	01 19	156	
1657	19	eP eS	Zs NsEsZs	02	15 15	10.3 22.3	103	
1658	19	iP iS	Zs NsEsZs	14	26 27	34 10	318	
1659	20	iS	NsEsZs	01	19	14		Small, local
1660	20	iP	NsEsZs	13	10	22		H=13-05-28.5 Depth-180kms. 7.2S; 129.2E Banda Sea, Mag: 5.3*
1661	21	iP iS	Zs NsEs	04	19 19	01.4 12.8	98	
1662	22	iP eS	Zs N ₁ E ₁	01	28 30	50 16	765	H=01-27-07.2 Depth-61kms. 9.8°N; 126.1°E Mindanao, Phils. Mag: 4.9*
1663	22	iP iS	Zs N ₁ E ₁	05	06 07	48 03	129	H=05-06-27.9 Depth-44kms. 13.6°N; 120.7°E Mindoro, Phils. Mag: 4.7*
1664	22	iP iS	Zs NsEs	05	16 16	17 34.3	150	
1665	22	iP iS	Zs NsEs	05	27 28	47.5 03.8	141	
1666	22	iP	Zs	06	20	44.4		Small
1667	22	iP iS	Zs NsEs	13	27 27	30.4 46.3	138	
1668	22	iP iS	Zs NsEs	14	02 03	54.4 51.6	508	
1669	23	eP	NsEs	05	38	48		
1670	23	iP iS	Zs NsEsZs	14	08 08	22 39.2	148	H=14-08-00.5 Depth-118kms. 13.8°N; 120.6°E Mindoro, Phils. Mag: 5.3* Felt: Manila & Subs., Gulod, Talisay, Bats. -Int. IV Iba- III, Quezon City-II.

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No.	Date	Phase	Comp.	Time(GMT)			Distance kms.	Remarks
				h	m	s		
1671	23	iP iS	Zs NsEsZs	15	20 20	12 28.5	143	
1672	23	iX	N ₁ E ₁	16	26	36		H=16-20-35.8 Depth-19kms. 24.7°N; 122.6°E Taiwan Region Mag: 4.8*
1673	23	iP iS	Zs NsEsZs	22	19 19	05.4 23.0	153	
1674	23	iP iS	Zs NsEsZs	22	30 30	38.2 57.0	163	
1675	23	iP iS	Zs NsEsZs	22	53 54	52 13.3	178	
1676	23	iP iS	Zs NsEsZs	23	58 58	18.2 36.2	156	
	24							No Quake recorded
1677	25	iP iS	Zs NsEsZs	17	07 07	07 32	220	
1678	25	eP	NsEsZs	21	52	30		H=21-32-27.3 Depth-7kms. 15.8°N; 59.7°W Leeward Islands Mag: 6.4*(M _b), 7.2(M _s) Felt on Guadaloupe, Domi- nica & Martinique (VI), St. Vincent(V) & Antigua & Barbados (IV)
1679	26	eiP iS	Zs NsEsZs	20	19 19	05 21.5	143	
1680	27	iP iS	Zs NsEsZs	02	58 59	12 16	479	H=02-57-09 Depth-Normal 13.9°N; 125.2°E Phil. Is. Region Mag: 5.0*
1681	27	eP iS	NsEs NsZs	04	11 11	33.2 48.2	129	
1682	27	iP	NsEsZs	09	16	41		Teleseismic H=09-11-20.3 Depth-Normal 10.0°S; 118.9°E South of Sumbawa Is. Mag: 5.1*
1683	27	eP eiS	Zs NsEsZs	20	21 21	24.5 40.5	138	
1684	27	iP iS	Zs NsEsZs	21	21 21	40.6 56.8	140	

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No.	Date	Phase	Comp.	Time(GMT)			Distance kms.	Remarks
				h	m	s		
1685	28	iP	Zs	13	48	49	140	
		iS	NsEsZs		49	05.2		
1686	28	iP	Zs	15	11	54.5	27	
		eS	NsEsZs		11	58.0		
1687	28	eP	Zs	18	39	57	255	
		iS	NsEs		40	26		
1688	28	iP	Zs	22	48	49	300	H=22-47-38.2 Depth-51kms. 18.4°N; 120.3°E Luzon, Phils. Mag: 4.5*
		iS	NsEsZs		49	23		
1689	30	iP	NsEsZs	11	21	05	175	No Quake recorded Teleseismic H=11-17-31.8 Depth-88kms. 0.1°S; 124.1°E Molucca Sea Mag: 5.2*
1690	30	eP	Zs	14	09	04	157	
		eS	NsEsZs		09	24		
1691	31	iP	Zs	09	58	04.4	1,880	H=19-01-56.1 Depth-44kms. 28.5°N; 129.1°E Ryuku Islands 5 Injured & slight damage at Naze(V), felt on Yaku Shima (III) & Kago Shima (I). JMA Mag: 6.2**, 6**** 5.9M _b , 6.3M _s *
		iS	NsEsZs		58	22.5		
1692	31	iP	NsEsZs	19	05	40	2,080	H=23-38-52.3 Depth-483kms. 7.0°S; 117.8°E Bali Sea Mag: 5.3*
		iS	NsEsZs		08	48		
1693	31	iP	NsEsZs	23	43	11	2,080	H=23-38-52.3 Depth-483kms. 7.0°S; 117.8°E Bali Sea Mag: 5.3*
		iS	NsEsZs		46	37		

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